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RAIL-ROAD NEWS.

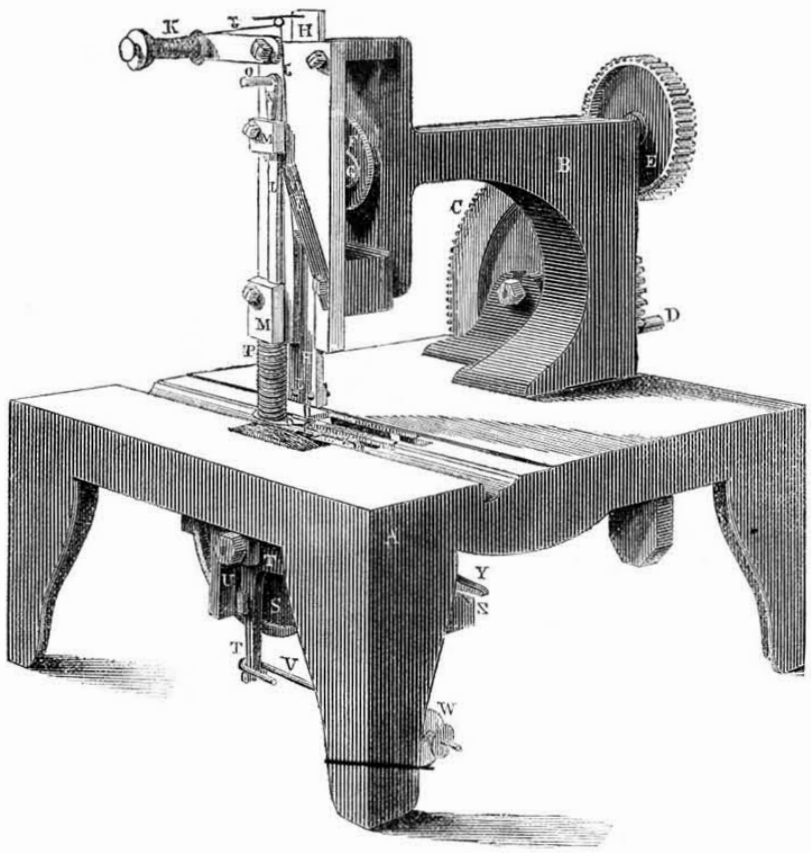
Railroads in Europe.

We have rather been consoling ourselves with the idea that our recent railroad enterprise was greater than that of all other nations together. This seems to be a mistake, for the Continent of Europe, mixed up with despotic governments, appears to be as truly alive to the importance of railroad communication, as the most go ahead of all our States. The London Times has recently been publishing statistics of the progress of the different countries, which exhibit these results:—Belgium has 532 miles of railways, 353 of which have been constructed and worked by the State, the remainder by different private companies. The expense of constructing the whole has been £9,576,000, or £18,000 per mile. The annual expenses are 63 per cent. of the receipts, and the profits three and a half per. cent. on the capital. In France there are 1,818 miles of railway under traffic, 1,178 miles in progress, and 577 miles projected. The cost of construction per mile has been £26,832, and the whole expenditure requisite for the completion of the 3,573 miles is estimated at £95,870,735. The average annual net profit on the capital employed does not exceed two and seven-tenths per cent.

In Germany there are 5,342 miles of railway in actual operation, 700 in progress, and 2,414 miles projected. Of the railways in operation, 1,812 miles were within the Prussian territories, and 771 miles in the Dutch Netherlands, the Danish Duchies, and the ex-German Austrian provinces, and therefore only 4,571 miles can be considered as strictly within the Germanic confederation. Two-fifths of these 4,571 miles were constructed and worked by the State, the remainder by private companies. Those in Prussia, however, are all the result of private enterprise. The expense of construction of the 5,342 miles is estimated at £12,500 per mile, being single track only. The working expenses are about fifty per cent. of the receipts, and the net profits are nearly three per cent. In Russia a railway from Warsaw to Cracow, 168 miles in length, is in operation; one connecting Warsaw with St. Petersburg, 683 miles in length; and one of about 400 miles, from St. Petersburg to Moscow, is in progress. A railway for goods from the Wolga to the Don, 105 miles in length, is also contemplated. In Southern Russia a line of railway between Kief and Odessa has been surveyed. In Italy no extensive system of railway has yet been executed. A few lines, diverging from the principal cities, such as Naples, Milan, Venice, Leghorn, and Florence, are alone in operation. In the kingdoms of Sardinia, Spain, and Portugal, railways are only in prospective.

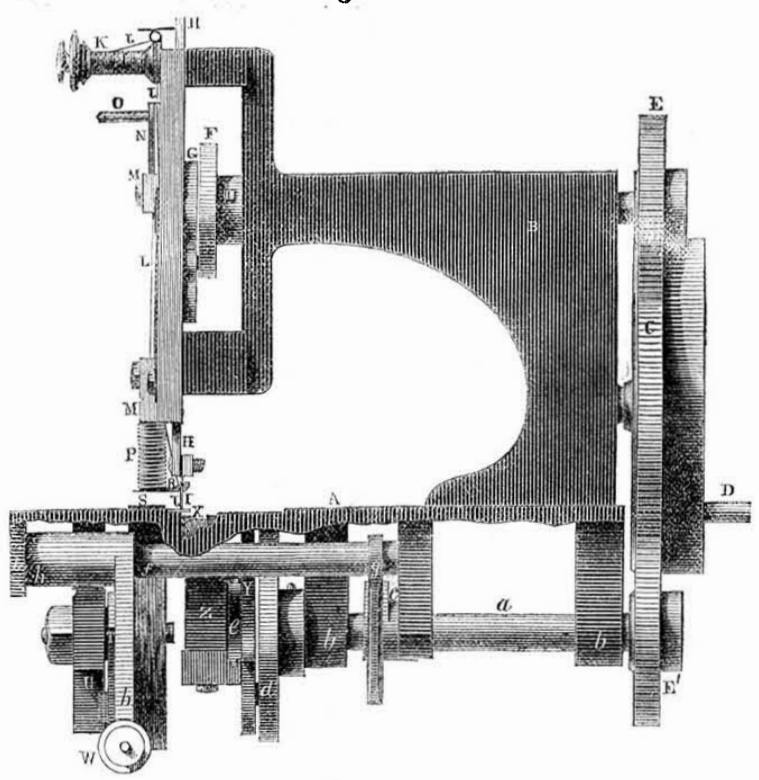
By multiplying £1 by $4,85 we can arrive at the cost per mile of some of these roads. It will be observed that the French lines—the highest—cost $130,135,20 per mile, or nearly three times as much as those of Massachusetts, the cost of which averages $43,781,00, or about £9,000. If the European lines pay at such an enormost cost, need we be afraid?

SINGER'S SEWING MACHINE.---Fig. 1.



The accompanying engravings represent a perspective view, figure 1, and a side elevation, figure 2, of Isaac M. Singer's Sewing Machine, which was patented on the 12th of last August. A is the frame, made of cast-iron, and B is a cast-iron standard to support part of the working machinery. C is a large driving wheel, worked by the handle, D. E is a small second wheel, driven by C, and works the shaft that vibrates the needle; E′ is another wheel to work the shuttle shaft, *a*, hung in the bearing straps, *b b*, fig. 2. F is a round plate on the revolving shaft of E; it has a small roller stud on its inner face fitting into a plate, G, slotted of a heart-shape, to answer the purpose of a cam. This plate, G, is secured to the vibrating arm, H, to which the needle, I, is fastened. The needle performs three strokes up and down during one revolution of the large wheel, C. The thread, J, of the needle is supplied by a bobbin, K, and goes through an eye in the needle, near its point. The cloth is laid flat on the table on the top of a small rough-faced roller, S, with the edge to be sewn under the needle. The cloth is held down by a pad, R, acted upon by a coiled spring, P;

Figure 2.



this pad is raised by a pin, O, and kept fixed by a catch bar, N, which presses against a shoulder piece, M. There is another shoulder piece, M, to secure the arm, L, of the pad, R in its place. When the cloth is laid on the table, on the wheel, S, the catch, N, is thrown out, and the pad, R, is pressed on the cloth by the spring, P, and is retained firmly in its place but still allowed to be carried forward as it is stitched. The way in which the stitch is performed is by two threads, one supplied with a shuttle, X, the other by the needle, I. Without two threads, no good stitch has yet been made by any sewing machine. X is the shuttle carrying a thread which passes from a pirn inside through a small eye on the side next the needle. Now, to form the stitch, which is just like the lock or link of a chain, the thread in the needle, after having passed through the cloth, opens, and the shuttle passes through this loop, therefore, when the needle is drawn back, and the shuttle also to the end of its raceway, the two threads are drawn tight, forming a link drawn on the cloth, and thus link after link of these threads form the seam. The drawing of the threads tight, and the forming of the loop on the end of the needle for the shuttle is an essential feature to the successful working of these sewing machines. For this purpose the shuttle, X, has a motion to coincide with that of the needle, I, and it is imparted by the same devices, *d*, fig. 2, being like plate, F, and Y like cam G, only the shuttle runs horizontally at right angles to the needle; *e*, fig. 2, is the shuttle arm, and Z is the guide or raceway, in which it runs. Thus the motions of the needle and shuttle are explained. The other lettered devices not explained are those belonging to the cloth-feeding motion. The roller, S, that moves the cloth has a rough face, and rotates, but moves round slowly, only making its movements forward the length of a stitch for every stitch taken; this is done by catches or pallets, a well known [illegible]. These pallets are vibrated by a rocking shaft, *f*, having a bar, *g*, on it, which is moved by a cam, *c*, on the shaft, *a*. To the small rocking shaft, *f*, there is secured a suspended lever, *h*, having a collar, *h* surrounding said shaft, near its bearing end, *i*. This lever has a hook, V, on its lower end, to which is affixed a setting screw, W. The hook, V, catches on the hand of an arm, T, which has pallets or catches in a box, that catch into notches on the shaft of the feed wheel, S; every time, therefore, the lever, *h*, is vibrated, the feed wheel, S, moves the cloth the exact length of a stitch forward; the set screw, W, is for regulating the length of feeding the cloth forward to make short or long stitches.

This machine does good work. The patent claim will be found on page 390, Vol. 6. Sci. Am. The agent of this machine is W. H. Shepard, No. 256 Broadway this city.

Things to be Invented.

Among the things that are wanted by every body is a substitute for pen and ink. It seems that a single instrument ought to perform the function, and that fluid ink may be dispensed with. Cannot some substance be found, simple or compound, that will make an indelible mark upon paper, being hard enough also to hold a fine point? Or cannot paper be so prepared, without great addition of expense, as to aid the purpose?

The Christian Hat.—The improvements of the age have reached almost every thing except the abominable flower-pot hat, that so much needs the kindly attention of reformers. We are glad to notice that attention is being directed by some of our public journals to the unreasonableness of a stiff and perspiration-proof covering for the head. The flower-pot hat cannot pretend to beauty; it is certainly uncomfortable and unhealthy. Why then shall we not seek a substitute? The hat should be very light and porous, and by all means soft or elastic; and if any article of our dress calls for especial ornament, the covering of the head speaks most loudly for something to set off the front that slightly distinguishes one man from another. The Turban is probably most susceptible of such modifications as would be most easily adjusted to the purposes required; and we think some such change of the head-dress would require little urgency to get into general favor.

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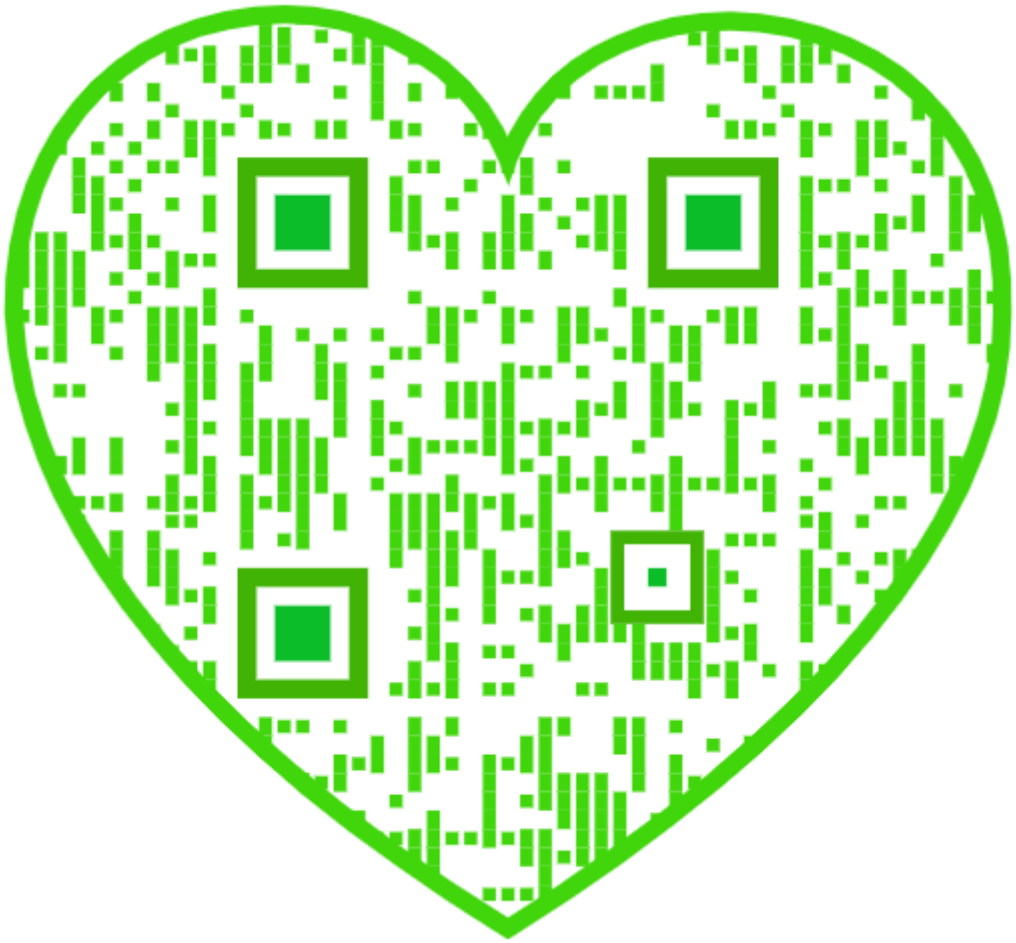

MISCELLANEOUS.

The Fair of the American Institute.

[Continued from page 42.]

CARRIAGES, &c.—The display of carriages this year is tolerable, Mr. John H. Wood, of Poughkeepsie, exhibits one single carriage, and two phætons of admirable workmanship, especially the former. Armour & Brothers, 87, 6th street, this city, exhibit a beautiful light wagon. John Swenartin, of 225 Greenwich street, this city, exhibits a shifting top wagon. Messrs. Borden & Brannen, Newark, N. J., exhibit a fine double trotter wagon. Messrs. Williams & Dinger, of Amity Place, this city, exhibit a very rich coach, the finest we have seen in a long time. John B. Wood, of Clifton, Staten Island, exhibits a phæton, all of iron named, the Victoria Phæeton. It is low in the wheels, and resembles the "jaunting car." An iron buggy, on Patterson's patent, is exhibited by Mr. Schenck, of this city, the wheels are suspension, and the shafts are iron tubes. D. P. Carpenter, of Varick street, this city, exhibits a light wagon with spring steel wheels. Theodore V. Seaman, of 124 Eighth street, this city exhibits a very fine light trotting wagon, and John C. Ham, of 360 Broadway, exhibits a very nice light carriage. There was one fine omnibus on the bridge, and also some beautiful light trotting buggies. There were two rich sleighs and three or four Tom-Thumb carriages in the rotunda. The newest invention on carriages is the one we alluded to in our notice last week, with the folding top. We expected to see more from Newark this year, as it is famous for carriage making. We did not notice a single carriage from Albany, Troy, or Ithaca, places in which a great number of good carriages are made. What's the reason of this? No doubt they are good. Here we have only ten carriages and vehicles of that kind on exhibition; this is certainly a poor affair, when we consider how many manufacturers we have in every part of the country. We confess to have experienced some disappointment in the carriage display as a whole. We expect better next year.

STEAM ENGINES.—No machine has received so much attention or has been so tortuously modified as the steam engine. Every year brings out something novel; but with respect to practical value, time and repeated trials alone can determine that. This year three new modifications of the steam engine have been exhibited for the first time viz.; a pair of oscillating engines coupled at right angles to one shaft, built upon the principle of the invention of Messrs. Morris & Wylie, of this city, and exhibited by Mr. Morris, the other being the rotary engine of Mr. Barrows, corner of Water and Beekman streets, this city, and the next a beautiful model of a double cylinder to work expansively, by D. E. Barnum, of this city. The oscillating engines have no valve rods, the steam box is stationary, and the cylinder, as it vibrates, cuts off and exhausts itself, thus performing the office of a slide valve, another arrangement about it is a plan by a common slide valve, to exhaust the steam into the exhaust passages, and vice versa, and to set on and stop the engine, thus making it the best adapted oscillatiug engine for steamboats yet invented.

The rotary engine of Mr. Barrows, was the one that was usedin his boat for a considerable period, and which had seen a deal of rough service. It is built to work the steam expansively, by fixed head plates, having eccentric groves in their inside faces, which guide friction rollers on the end of the blade or piston bars, so as to depress them in slots, and guide the pistons out and in, to allow the steam to expand in four separate chambers on the periphery of an inside revolving drum. This engine met with a misfortune at the Fair, inasmuch as some person tried to stop it by using a crowbar for a lever, prying on the shaft, whereby the metallic packing was thrown out of one of the piston ends. It is wrong for men to be trying experiments without knowing what they are doing. A dynometer alone can measure the power of a machine. We examined the inside of this engine after it was taken down, and for all the hard usage it had received, the inside wear of it was but small indeed.

The model of Mr. Barnum is constructed upon a new principle, to use the steam to its utmost useful attenuation. and to have an equable motion at the same time. The improvement consists in having two cylinders of the same size coupled to one shaft, with the cranks set at about 60 degrees to one another, and the steam is received into one cut-off at half stroke, let on by a valve into the other, thus expanding in both to nearly four times its orignal volume, and providing a good even motion. An engine has been some time in successful operation in Messrs. Rodman's foundry, this city. Our engineering readers will be able to form a very good idea of what is new in these engines, and as the steam engine is the most important *prime motor* in the world, everything connected with it is of great interest to all men.

SELF-ACTING SWITCH FOR RAILROADS.—Mr. Jones exhibits, in the machine room, a working model of a self-acting switch; the switch is operated by having an inclined projection on a joint of rail, which is operated by a friction pulley on a shaft placed on the engine under control of the engineer. There is the same arrangement on two sides for an up and down train. The pulley presses down upon the incline of the rail which is connected below with the rail to be shifted by bellcranks and levers, which at once shift the rail before the locomotive comes up, thus dispensing with a switch-tender. We have seen a number of self-acting switches, constructed to operate upon neafly the same principle. We are not aware of any being in actual use, nor can we tell if they have been sufficiently tested. Have engineers discovered a defect in their principles of construction, or are they only prejudiced against them?

OLD FACES.—It is a pleasant thing to meet with old well-known faces, and among the propelling improvements exhibited, we noticed an old V bucket paddle-wheel, which has stood at every Fair within our memory. We suppose that its admirable qualities are yearly presented to command that admiration which no man feels, and never will.

COLORED PHOTOGRAPHS.—In the lecture room are some beautiful Daguerreotypes, and among them we were particularly struck with some colored photographs by Messrs. Kroehl & Vetter, No. 499 Broadway, this city; they are beautiful pictures, and resemble correct oil painted miniatures more than sun drawn likenesses. They are really a credit to our city and the talented artists who produced them.

SELF-ACTING GENERATING GAS AND BOTTLING MACHINE.—A very ingenius and beautiful machine for generating gas for soda water and for bottling the water, is exhibited by Mr. William Gee, 66 Gold street.

SEWING MACHINES.—Quite a number of these machines were exhibited last year.—There were two this year—both were in the gallery. The one is E. Howe's, the original one for sewing with shuttle and needle, (two threads), and patented in 1846, as noticed in Vol. 2, Scientific American. The other is Singer's Sewing Machine, which is illustrated on our first page this number. It is near to that of Mr. Howe's.

RAILROAD CAR SPRING.—A railroad car spring made of prepared wood and metal, was exhibited by Mr. Bissel, on the bridge. It is a good spring, but it rather amused us to see it illustrated in a cotemporary last week, "with its head where its feet should be," and in such a position that it would not stand the strain of a good sized boy pressing on the lever. This, however, is to be expected from papers which are conducted by men who know as much about machinery as an Esquimaux. It is enough to destroy the character of any good invention, thus to place it in a false place and wrong position.

BELLS.—There was a fine set of bells manufactured by Andrew Meneely, of West Troy, N. Y. Their chimes, on last Saturday, sent forth the mournful notes that Andrew Meneely was no more. He was a man of great energy and greatly esteemed as a lover of his fellow men, and a subscriber to such papers as the Sci. Am.

ICE CREAM FREEZER.—Messrs. Smith, Torrey, & Co., No 50 Maiden Lane, had on exhibition Masser's Patent Freezer, illustrated on page 60, Vol. 5, Scientific American. By the aid of this easily operated and beautiful invention, ice cream was made during the summer, as we learn, in the incredible short space of five minutes. We need not explain this contrivance, as most of our readers can refer to it; we would, however, add that parties who may wish to purchase machines, or negociate for rights, can apply as above.

On last Saturday evening the Fair closed with a short address by the Hon. Henry Meigs and the following is the list of gold medals awarded.

Dorastus Kellogg, Skaneateles, N. Y.—for the best specimens of Cassimeres.

D. Rodman, Albany, N. Y.—for the best Merino Cassimeres.

Duncan & Co., Franklin, Essex Co., N. J.—for the best Piano and Table Covers.

Wamsutta Mills, New Bedford, Mass.—for the best Bleached Shirtings.

New York Mills, Oneida Co., N. Y.—for the best Bleached Jeans.

A. W Sprague, Providence R. I.—for the best Prints.

James Roy & Co., Watervliet Mills, N. Y.—for the best Woolen Shawls.

Duncan & Cunningham, Franklin, N. J.—superior Embroidered Shawls.

Griswold & Co., Troy, N. Y.—for Velvet and Tapestry.

J. W. Farnam & Co., Cohoes, N. Y.—for the best Plain and Satin finished Linen Thread.

Steele & Co., New York—for excellent specimens of Feather Brushes.

James H. Grovesteen, New York—for the best Piano Forte.

Waterville Manufacturing Co., Waterbury, Conn.—for the best Pen and Pocket Knives.

Lampson, Goodnow, & Co., Shelburne Falls, Mass.—for the best Table Knives and Forks, Butcher and other Knives.

Baldwin & Many, New York—for the best Mounted Door-Knobs.

Williams & Dinger, New York—for the best Carriage.

John H. Wood,—for the best Leather-top Wagon.

John Russel, New York—for a case of Files of superior quality.

Waterloo Brass Co., Waterbury, Ct.—for superior Brass Kettles.

R. Hoe & Co., New York—for a frame of very superior Saws.

Mr. Steers, New York, for a model of the Yacht "America."

Smith & Diamond, New York—for the best Model of a Steamship.

Emery & Co., Albany, N. Y.—for the largest, and a very superior collection of Agricultural Implements.

Eddy & Co., Union Village, Washington Co., N. Y.—for an improved Threshing Machine.

Eddy & Co., Union Village—for a 20 feet Horizontal Horse-Power.

Richard J.Gatcling, Indianapolis, Ind.—for a very superior Wheat Drill.

Brooklyn Flint Glass Co.—for the best Venetian and Bohemian Glassware.

L. D. Gerardin, Jersey City—for the best Decorations on Porcelain.

Alexander Young, New York—for the best Terra-Cotta Ware, and Building Ornaments.

Woodward, Blakely & Co., East Liverpool, O.—for the best Rockingham Ware.

M. A. & S. Root, New York—for the best Daguerreotypes.

C. C. Harrison, New York—for the best Daguerreotype Cameras.

Henry Fitz, New York—for an Equatorial Telescope.

H. S. Farley, New York—for a fine specimen of Cement Marble.

G. Borden, Jr. New York—for a specimen of a new and valuable article of food, called the "Meat Biscuit," and for very fine and pure Beaf Lard, being a substitute for ordinary Lard—made in Texas.

Thos J. Burger, New York, for fine specimens of Saltpetre.

Geo. Brodie, New York—for the best Cloaks and Mantillas.

World's Safe Co., Troy, N. Y.—for Safes made from Chilled and Cast iron, impenetrable to Burglars.

Platner & Smith, Lee, Mass.—for very superior Letter and Ledger paper.

Silas C. Herring, New York—best Fire Proof Safe.

J. W. Anderson, New York—for the best specimen of Casting in Bronze.

Thos. F. Hoppin, Providence, R. I.—for a model of Dog, "Sentinel."

Mrs. A. D. Frye, New York—for the best specimens of Algæ.

S. H. Shiddle, Lexington, Ky.—for a beautiful Bale of American Dew-Rotted Hemp.

I. M. Singer New York—for the best Sewing Machine.

Wanton Rouse, Taunton, Mass.—for a Cop-Spinner.

James Judson, Rochester, N. Y.—for the best Governor Valve.

S. Stow & Co., Southington, Ct., for the best set of Tinman's Tools.

E. B. Clayton & Sons. New York—for a labor-saving Numbering machine.

Roys & Wilcox, Berlin, Ct., and Francis Blake, Boston—for Flander's Rotary Shears.

J. P. Stillman & Co., Westerly, R. I.—for a Self-Stripping Machine.

F. J. Austin, New York—for the best paper-Cutting Machine.

Samuel House, Boston Mass.—for a Water-Metre.

J. B. Tarr, Albany, N. Y.—for a powerfully constructed Fire-Engine.

G. H. Penfield, New York—for a superior Breach-Loading Rifle, Sharp's Patent.

Newell & Day, New York—for the best Bank Lock.

F. B. Pye, New York—for the second-best Bank Lock, with Chronometer attachment.

Mirror Mantel Co., Boston Mass.—for a Mirror Mantel.

James Lenghi, New York—for the best specimen of Statuary Marble Mantel-Pieces.

Total number of Gold Medals, 59.

VAN SCHAICK MEDAL.—For the best specimen of Raw Silk, John M. Summy, Lancaster Pa.—the Van Schaick premium of $10 and a Bronze Medal.

Locomotive Prizes.

The following are the list of prizes awarded to the locomotives tried at the recent Fair at Lowell.

To John Howe, Jr., Agent of the Brandon Works, a silver medal, for Mowry's carriage coupling.

To the Addison Gilmore, from the Western Railroad, a gold medal for best time made.

To the Nathan Hale, Boston and Worcester Railroad, a silver medal for the second best time made.

To the Dedham, from the Boston and Providence Railroad,—for the peculiar arrangement of the engine and tender, and for the drawing apparatus, which increases the adhesion, with increased load or increased draft, on inclined planes, a silver medal.

To the Milo, Freight Engine, from the Boston and Lowell Railroad, for the best performance according to the prescribed rules,—a gold medal.

To the St. Clair, freight engine, for the second best performance,—a silver medal.

The Judges were Wm. P. Parrott, Boston, chairman, Prof. Pierce, Cambridge; J. Hinckley, of Lowell, and Geo. W. Corliss, of Providence, R. I.

Quince and Apple Preserve.

Our friend Myrick, of the United Society of Shakers, Harvard, Mass., has favored us with a bucket of quince and apple preserve, which surpasses anything of the sweetmeat kind we have had this season.

The post office address of the Harvard Society is South Groton, Mass.

Any of our friends desiring choice sweetmeats of any description, done up in the best manner, can have their orders filled by addressing a line to E. Myrick, at the above post office. Orders filled by express.

There is an interesting Patent Case now being tried in Albany, N. Y., before Judge Nelson, relating to the famous McCormick Reaper.

By the latest news from Europe, England was on the tiptoe of expectation, awaiting the arrival of Kossuth. He will soon be in America.

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Dr. Jackson's Address before the American Institute.

As noticed last week we will proceed to quote some extracts from this very able address.

What is Learning?—Colleges.—I must ask your indulgence toward the few thoughts which I shall endeavor to bring for your consideration concerning the encouragement and cultivation of science in the United States.

I have chosen this subject because I deem it one of vital interest to all concerned in the practical arts: for science has been defined to be the "Handmaid of the Arts," and as such is most assuredly a maid of honor, for certainly there is no higher vocation than ministering to the wants of the arts, on which the comforts and refinements of civilized life depend, and without which civilization itself could have no existence. Science may claim still more—it may be considered as the very soul of arts, giving to them life and progressive power, creating new means of human advancement, multiplying arts, and re-acting again upon the mind of the discoverer and inventor, endowing him with still higher powers of discernment and application. The time has long since passed when the dignity of a science was reckoned by its uselessness and its inapplicability to the so called vulgar uses of life.

No longer is learning to be banished from the workshops and be shut up in cloistered cells or in colleges, there to be kept beyond the reach of the workmen of our land.

It is too late for the antiquated scholars to denounce the cultivation of science, or to expatiate on the superiority of a little knowledge of Latin and Greek, for the world now bears witness to the higher achivements of modern science; and instead of delving forever into the history and precedents of the past, Young America presses forward to her brilliant future, unmindful of the checks which conservatism in error would place in her way. A democracy of science must and will overcome all obstacles, and regard as mile-stones of the past many of our so called institutions of learning.

[Well said Dr. Jackson; the very vitality of our colleges now depends upon a reform in teaching the useful—science and art.]

Book Learning—Iron and Steel.—Let the unfounded prejudices against book-learning be driven from the minds of men by making books still more worthy of being read and studied. Let theory and practice join hands "now and forever in indissoluble union."

Are not the arts living illustrations of the principles of science? Is not the world a great book of wisdom, as yet but partially read? Is not the field of the farmer full of wonders but little known to him, for want of scientific light?

"Give me to see," should be the cry of every intelligent man.

The iron master naturally wishes to know the nature and properties of every kind of iron ore, how it was formed, where it was found, and all the geological facts connected with its history, as well as how to reduce the metal to its most marketable form at the least cost and most profit.

Though he may not be a manufacturer of steel is he not interested in knowing what it is and how it differs from soft iron? Is not every man who owns a penknife or a razor interested in knowing what those implements are made of, and on what their excellence depends?

Will it harm him to know how his fluxes and fuel operate, and in what the differences between hot and cold blast, anthracite, coke, and charcoal-made iron consist? Will not science aid him in attaining the desirable result of making iron as cheaply and as well on this side of the Atlantic as on the other?

Cannot we make as good cast-steel from our excellent American iron as is made from similar metals from Sweden and Russia by the people of England?

Gold, Silver, Zinc, Copper.—Although we have learned to smelt lead advantageously, our workingmen do not know how to extract the silver which it often contains in considerable proportions, and the profit of its extraction goes into the hands of European refiners.

So with respect to alloys of copper and silver; we abandon the business of extracting the precious metal to Europeans, and have not a single cupelling furnace in the United States.

Only a few years since we were wholly dependent on England for copper; but now we produce about one-tenth of the quantity required in the United States, by working a few of our own mines, and by smelting ores brought from other parts of the world.—There is room for the extension of this business.

Gold we have in abundance on both shores of our continent; but unfortunately this delusive metal has led too many to ruin on account of their ignorance of the history of gold mining, and a want of scientific skill in operating. A knowledge of the fact that veins of the precious metals decrease in richness as they descend into the earth, would have saved thousands from plunging into erroneous speculations.

Baron Humboldt confidently predicted that the gold mines of California would prove of little economical value to the United States; and notwithstanding the $50,000,000 worth of gold that our new territory pours into the lap of commerce every year, if I am not erroneously informed, more than double that amount is expended in obtaining it.

Metallic zinc has never yet been profitably distilled from the ores of this country, owing to the want of skill in the operatives; but we shall soon learn how to prosecute the art, and shall then bring our numerous rich zinc mines into action.

Already citizens of New York and New Jersey have made a beginning, and have succeeded in the manufacture of an innocuous white paint from the ores of the Sussex Mines, and will, ere long, render Le Claire's discovery economically valuable in the United States, and we see that this discovery will banish lead paralysis from the hand of the painter, and colic from his bowels.

[It appears to us that the Dr. is tinged with musty antiquated opinions. Is it an established *fact* that *all* veins of the precious metals decrease downwards in richness! It is not. It is not a fact that more money is expended in obtaining the California gold, than what can be had in return. We have been informed that metallic zinc is now profitably made in New Jersey. We were told this by the agent of the Zinc Company.]

Tin—Want of Scientific Mining Skill in America.—Metallic tin is not produced in this country for want of the discovery of mines of its ores, only five small veins having thus far been discovered in the United States.

Turn the attention of our mineralogists and geologists to the metamorphic rocks, and let them search with practical views, and we shall doubtless soon know if we are to be wholly dependent upon England and the East Indies for this valuable metal.

Iron ores we have in abundance, and to America is due the honor of discovering the method of reducing them by means of anthracite hard coal.

The finer kinds of iron which are smelted by means of charcoal fuel from the best kinds of iron ore should not be confounded in our markets with the coarser varieties, but should be reserved, as in Europe, for particular purposes.

We have much to learn in the science and economy of the furnace before we can produce iron at sufficiently low cost to dispense with tariff laws. If half the time and money that is expended in political electioneering, had been devoted to the improvement of the art of the iron smelter, we should long since have produced this indispensable metal at a lower cost than it can be obtained from Europe.

Of the art of mining our people know but little; and notwithstanding the multitude of absurd speculations in the formation of stock companies for working mines, we have but very few successful operations in progress.

Few are aware that a mine must first be constructed before it can be advantageously wrought, and that a considerable amount of money must be expended in making the requisite preparations, before profitable returns can be expected, from even the richest mines. Hence, through want of knowledge, and unreasonable impatience, a good mine instead of being won, is lost, with all the capital expended in attempting to open it.

Thus far our successful mining has been the work of Cornish miners; and I regret to say that there are but few that have given profitable returns, owing to the want of scientific skill in scientific and economical management.

The Telegraph.—Chemistry and physics gave to the world the electric and electro-magnetic telegraphs—those marvellous means of communication which enable us to use the lightning for our Mercury in transmitting intelligence quick as thought.

This product of science was the work of many heads and hands, and belongs to no one man, but to the scientific world. To Oersted, of Copenhagen, in Denmark, who first suggested it, to Jos. Henry, who improved the electro-magnet, and still more to Daniell and Grove, of London, who invented the sustaining galvanic battery, the chief credit is due; while to several others is to be credited the different modes of recording the signs by which numbers and letters are denoted.

At the suggestion of Arago, the talking wires of the electric telegraph are made to measure the longitudes of places inland, with greater accuracy than any astronomical measurements by lunar distances and occultations of stars, as formerly practiced with the aid of the sextant and chronometer only.

The recording electro-magnetic clocks of Bain, Wheatstone, Locke, and others, give precision to astronomical observations never known before, and divide the second of time into a hundred parts, measurable by the dividers upon a strip of paper.

It is by no means certain that there are not more worlds for science to conquer; and it is more desirable to march onward, than to stop to quarrel about the priority of discovery of those which have already been made. Time and the scientific historian, will do justice to all who have contributed in bringing about these valuable results regardless of every unjust monopoly attempted by patent laws.

[We were anxious to know what Dr. Jackson thought of the telegraph, in other words, to have his opinion about who was the inventor of the telegraph; he has been spoken of as the inventor of it in preference to Mr. Morse. He never mentions the name of Morse.]

Justice to Inventors.—It requires no small amount of moral courage in a man of science to lay his discoveries before the world, and abide the storm of abuse that is sure to fall upon his head.

Gallileo, Harvey, Jenner, Scheele, and Davy all suffered persecutions severe in direct ratio to the importrnce of their discoveries; and the day is not yet come when persecutions for doing good will cease.

It is true of the great men I have just named, that the world ultimately did justice to their discoveries, though not during their lifetime. We now know that Watt discovered the composition of water; but it was not until 66 years after his death that the honor of this discovery was awarded to him by the instrumentality of the researches of Arago and Dumas, who were sent to England to learn all the particulars of his scientific career, for the purpose of preparing his eulogy for the Academy of Sciences of France.

Every attempt was made to rob our own Franklin of the honor of the discovery of the identity of lightning and electricity, and of that of discovering the means of protecting our ships and dwellings from the thunderbolt; but, in time, the award was made to him by the unanimous consent of the scientific world.

How Justice can be done to Inventors —Patents, &c.—I need not say more of injustice done to scientific men. The subject is painful, and the facts are discreditable to our race. It is better that we should set about the work of preventing the repetition of them in our own land, and of rescuing mankind from the crimes brought on by selfish ambition, unprincipled avarice, and hateful envy.

How can this be accomplished?

First and chiefly, without doubt, in cultivating high morality in the community and a sense of justice toward their fellow men. Secondly, by requiring full and decisive proofs of a discovery before any man's claims to it shall be allowed. Third, by having recorded, in the archives of science and in permanent institutions, the exact history of every important discovery, with the evidence of the facts alleged.

It should not be enough that a mere speculator in inventions, should go to a Patent Office and swear that he has made a discovery and inventi n, when he may have stolen it from some unsuspecting man of science, or from a more humble artisan.

No true man of science will ever disgrace himself by asking for a patent; and if he should, he might not know what to do with it any more than the man did who drew an elephant at a raffle. He cannot and will not leave his scientific pursuits to turn showman, mechanic, or merchant; and it is better for him and for the world that he should continue his favorite pursuits and bring out more from the unexplored depths of human ingenuity and skill.

What then shall be done? How can we protect the discoverer and inventor?

There was a discovery of a most curious and wonderful nature made in France a few years ago—one that astonished the world more, perhaps, than any that was ever made; one, too of universal importance, and very difficult to protect by letters patent.

It was the discovery of Photography, and of causing objects in nature to paint their own pictures by the sun.

This discovery was made by a Frenchman named Niepce, who on his death entrusted it to his son. It was then quite imperfect, though the principle was well established. Niepce communicated this discovery to Daguerre, a Parisian painter of dioramas, and it was arranged that they should perfect it by their joint labors, and since Daguerre promised to render it available to their interests, Niepce agreed that the art should bear Daguerre's name.

By the aid of chemistry this wonderful art was brought to such a degree of perfection as to be ready for publication. To Daguerre came the happy thought of entrusting this discovery to one of the most honorable members of the institute, M. Arago, the astronomer of France; and this savant offered to lay the discovery before the Academy of Sciences and to make it free to the public on certain terms. This was soon arranged, and the fact of making a picture by sunlight was instantly demonstrated to the Academy.

An award was then voted of 6,000 francs pension per annum, to Mr. Niepce during his life, and of 4,000 francs per annum to Daguerre for this discovery and invention, and forever after it was to be free to all men and all nations.

Thus the world became forever indebted to France for the most beautiful art that has surprised this wonder-loving age. Who, that has taken out letters patent for trifling improvements in this art, does not feel ashamed of himself when he contemplates this noble gift of the French nation? Gentlemen, I doubt not many of you have caught the idea which I have the honor to suggest for your consideration. If we would encourage the honest inventor and discoverer we should have some institutions as noble as the Academy of Sciences of France; and without abolishing the patent office we would leave to inventors and discoverers the choice between the two, and I doubt not most American inventors would prefer the Academy.

[Dr. Jackson pays but a wretched compliment to the great Watt, whom he extols in one sentence and calls him, along with all our patentees, "showman, mechanic, and merchant," for it is well known that he took out various patents and profited by them, and as a man of science he was certainly superior to the learned Doctor. What kind of a view has he of a what he calls a scientific man. Is not Dr. Hare, of Philadelphia, a scientific man? Yes he is, and stands high in the ranks, and is he a showman because he is a patentee. Is it a disgrace to be a mechanic and merchant, and exhibit a patent? No: we apprehend that Dr. Jackson did not fully consider these points; if he did he has a wrong idea of men and things. We might mention the names of quite a number of scientific men who have taken out patents—such as old Dr. Nott, of Schenectady; Dr. Page, of the Patent Office, &c.—to whom the remarks of Dr. Jackson do great injustice.

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NEW INVENTIONS.

Improvement in Turning Lathes.

Mr. Peter Tomlinson, of Derby, New Haven Co., Conn., has taken measures to secure a patent for a good improvement in the fore-centres of turning lathes, by which articles to be turned can be very quickly centered and detached. A series of levers are employed for operating the fore-centre by means of a foot treadle. The workman, by placing his foot on the treadle, makes it throw the fore-centre forward to catch into the piece of wood to be turned, and the said fore-centre is then prevented from moving back when the foot is taken off the treadle, by a rack which the side of the treadle catches into. But when the article is to be detached, by placing the foot upon the treadle again, a spiral spring raises two levers, when the fore-centre is set free from the rack and is forced back, when the turned article drops out, and then the lathe is ready to receive another rough piece for turning. The improvement enables a turner to do nearly, if not quite, double the work he could do by the old arrangement.

Improvement in the Construction of Sewers.

Mr. Willard Day, of Brooklyn, L. I., has taken measures to secure a patent for a very valuable improvement in the method of constructing sewers, which will prevent effluvia from rising out of them, and at the same time will make them in a manner self-cleansing. The side of the culvert is inclined, so that the water from the gutters descend the culvert with a force sufficient to carry away down into the sewer all effluvial matters. This improvement over the common form of culverts will render our system of sewerage more healthy, and certainly more agreeable to all those who have culverts near their stores or dwellings. We hope the improvement will be introduced at once into our city and all other cities. A vertical man-hole is made near the culvert, so as to clean it out in case of accidental choking by sticks or such like obstructions, but we believe it will not require to be used. With good grates over our culverts, the improvement will enable the sewers to be self-flooding or cleansing. When we consider that water, having a velocity of 12 inches per second, tears up gravel, and at a velocity of three feet per second carries stones the size of an egg, we have some reasons for expressing the foregoing opinions.

Improvement in Horse Collars.

It often happens that articles in common use escape the attention of inventors, and hence we find machines, articles, and systems in the same state now as they were hundreds of years ago. It is but a few years since attention was devoted to sewing machines, and many such things, and although we cannot say the same of horse collars, for we have seen many modifications of them, yet we must say that too little attention has been paid to their improvement. We say this because the clumsy, close, shoulder galling collars are in general use.

J. R. Lindner, of Newark, N.J., has invented and taken measures to secure a patent for an improvement in horse collars, which consists in forming the body of the collar of a spring, and making it to open and close at the bottom to allow it to pass easily over the horse's head, and to adjust itself better to the shape of the neck and shoulders of the animal.

Improved Railroad Cast-Iron Wheel.

Mr. Isaac Van Kuran, of Boston, has invented and taken measures to secure a patent for another good improvement in Cast-iron Wheels, whereby he is enabled to construct and apply his previously patented wheel for driving-wheels. He has added an eliptical cast-iron band to his wheel, by which driving wheels of locomotives of increased diameter can be cast with every provision made for the contraction of the metal, and yet of sufficient stiffness to prevent vibration without increasing the thickness of the wheel at the hub. A chilled driving-wheel, of any diameter, can be safely cast, by this improvement, with a hub no thicker than five and a half inches, to which thickness it is desirable to limit it. Mr. Van Kuran's Cast-iron Railroad Wheels are in great demand, and meet with an extensive patronage. From his great experience, as a practical engineer and master machinist on one of our oldest roads, he is well qualified to form a most excellent judgment of the kind of wheel required to meet all exigencies.

Stave Dressing Machine.

Mr. Dennison Woodcock, of Independence Centre, Allegheny Co., N. Y., has invented an improvement in machinery for planing and matching staves for barrels, &c. He employs rotary cutters so combined and arranged that the staves are first planed on their inside and outside faces. Rotary cutters are also employed, by being set in an inclined position, converging towards one another in front, to match the edges and form the bilge of the stave. The stave is cut to its proper length by a circular saw which revolves above the stave as it (the stave) passes through the frame, and descends as it cuts through, but rises when the stave is cut. The dressing of the faces of the staves, the matching of the edges, and the cutting off the stave to the desired length, are operations performed continually. The stave is fed in rough at one end of the frame, and, untouched by human hands, it comes out at the other end finished and ready to be set in the truss hoops.

PATENT BAND WRENCH FOR WAGONS & CARRIAGES.

Figure 1.

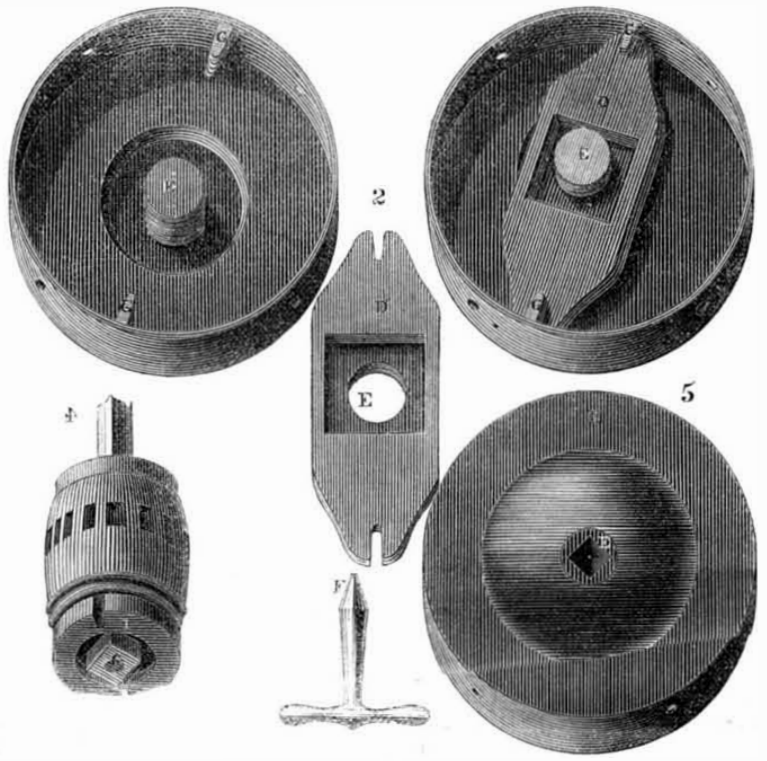

Figure 3.

This improvement was secured by patent last January (1851) to the inventor, Mr. A; M. Billings, of Claremont, N. H. The accompanying engravings represent the improvement in various positions, to show how it is constructed and operated.

A close band fits around the outside of the hub, the inside view of which is represented by No. 1; inside of this band is fitted what is termed a "band wrench," No. 2; this wrench is made to remove the common nut, which is placed on the ends of axles. No. 3 represents the wrench in its place. G G (No. 1) are flanges to hold the wrench, D, and allow it to slide in the band; E is a screw bolt which fits from the outside of the close band, through the centre of the wrench, D, which has a thread cut in it to allow the said screw to work out and in the wrench. No. 4 is a hub and axle without the close band, to show the nut, C, on the end of the axle sunk into the hub, from which it should project only about one-quarter of an inch; it also shows the grooves cut into the hub, to receive the flanges, G G, of the close band. No. 5 is an outside view of the close band, with a small square socket in the screw, E, and F beside it is the key to fit into the said socket to turn the short screw bolt; by turning this key forward, the screw carries the wrench up on to the nut; by turning the key backward, it brings the wrench back fast into the band. To remove your wheel from the axle, you apply the key to the socket and turn the screw forward, which at once carries the wrench forward until it clasps the nut; then whirl the wheel backward, and the nut is run off and the wheel instantly liberated. To put the wheel on, you simply run the hub on the axle, whirl the wheel forward, which runs the nut on; then, with the key still in the socket, turn the screw backward, which brings the wrench back from the nut securely into its place, and you are ready for the road. It is a simple and good invention, there can be no question of this. It can be applied to any wagon or carriage, and where is there a wagon which does not require it. It will no doubt soon come into general use.

Orders addressed to Smith Van Horn & Co., No. 211 Pearl street this city, will meet with prompt attention.

Improvement in Scissors and Shears.

Mr. John C. Symmes, of the city of Troy, N. Y., has invented and taken measures to secure a patent for an improvement in Scissors, which consists in constructing the pivot or axis of the two cutting jaws, in such a manner that the edges of the shears are drawn together sideways, in cutting, and all inconvenience arising from looseness of the pivot in the ordinary scissors, is obviated. The edges of the scissor blades are also formed longitudinally in such a manner that they always meet at the same angle throughout their whole length in cutting, thereby producing a smooth even cut of any length.

Improved Shingle Machine.

Mr. D. A. Bailey, of Robinson, Crawford Co., Ill., has invented a new improvement in shingle machines, which consists in the employment of knives having a rectilinear motion, and set at an inclination towards one another, which, in their descent or stroke, cut the shingle to the required taper, the wood being fed on to a suitable table for that purpose by a swinging frame, which holds the timber to its place till the knives effect the cut. Measures have been taken to secure a patent.

Engine Shafting.

Mr. T. S. Bourshett, of Philadelphia, has taken measures to secure a patent for a very useful improvement in the construction of shafting by uniting wrought and cast-iron. The wrought metal tube is placed in the centre, and a number of similar metal bars or rods are interspersed longitudinally between the central tube and the outside of the shaft, and the cast metal run in the mould on end to fill up the interstices and form the shaft. It is claimed for this improvement that a shaft, or other body so formed, is better adapted to stand the various kinds of straining that shafts are subject to, than either cast or wrought iron singly. There is no part of the machinery of a steamboat so severely tried as the shafting; it is necessary to have it strong.

Garments without Seams.

We have sewing machines not a few in number, now-a-days, and there can be no doubt but they are a benefit to mankind,—but would it not be a far greater improvement, and thereby a greater benefit, to make garments without seams, and thus obviate the necessity of cutting up the cloth into small pieces, just to be united together again by needle and thread At a glance it appears to be an erroneous principle of manufacturing garments, to cut up fine whole cloth into small pieces, and then sewing them together by a process both troublesome and expensive. Samuel M. Perkins, of Springfield, Bradford Co., Pa., has invented improvements in the manufacture of garments, whereby we shall be enabled to wear coats, and all such habiliments, independent of the weaver or tailor. The nature of the improvement consists in causing the bat, or fleece of wool, cotton, or other fibrous material, as it issues from the carding machine, to be wrapped on a 'Former" of the required shape of the desired garment. The "Former" is made to revolve, and at the same time, it has a reciprocating motion in a direction at right angles to the feed, so that the fleece will be wrapped spirally in contrary courses upon the "Former," for any number of layers in succession, according to the thickness of the garment required to be made. Measures have been taken to secure a patent. From the days of darkest obscurity and barbarism, in almost all nations, cloth has been and is made first of threads, then woven, then cut up, then sewed piece by piece again. Surely modern inventive genius has something yet to do to improve on the most approved process, which finally results in the garments we wear. Mr. Perkins has made a move, and his machine is an ingenious one in the right direction. Felt, we know, has been used for coats, &c., but seamless felt cloth garments, we presume, will soon be *new articles* entirely in our markets. The felting qualities of certain kinds of wool are well known, but whether cotton or linen can ever be felted in the same way, time alone will determine.

The Carbonic Gas Engine.

I was in Cincinnati the first of September, and had an opportunity of examining Prof. Salomon's "Carbonic Acid Gas Engine." He certainly has created a great power, but consumes so much of it in the details of the engine that he has but a small surplus remaining for useful purposes; from 1,008 lbs. to the square inch on the piston, he has but 360 lbs. that can be used, and this 360 lbs. would soon be lost in case of the least leakage of the joints, which it will be almost impossible to prevent, from the great pressure to which they are subjected. I hope he will succeed, but I have my doubts. In case of an explosion there would not be so many pieces to fly, but what there is would fly strong. ***.

Cuyahoga Falls, O., Oct. 15, 1851.

Copyright Case.

U. S. Circuit Court, Philadelphia, Judge Grier presiding.—On Monday the 20th inst., an injunction was granted in ths case of Huntington and others, against Johnson and others, the court granted a special injunction, to restrain the defendants from the printing and publishing of certain works of S. P. Goodrich, (Peter Parley,) comprising his histories of England, France, Greece, and the United States; the copyrights of which are claimed by the plaintiff. The injunction to remain in force until further order of the court.

Immense Railroad Depot.

The excavations which have been made in the square of land bounded by Centre, Elm, Franklin, and White streets, are preparatory to laying the foundation of a structure which will probably be the largest in the city. It is intended for the depot of the New Haven and New York, and New York and Harlem Railroad lines, and will cover the whole block. The cost of the building will not probably be less than seventy-six thousand dollars.

A Monster Tunnel.

Ground is broken for the great tunnel of four miles long through the Hoosic mountain for the Troy and Greenfield Railroad.

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Scientific American

NEW-YORK, NOVEMBER 1, 1851.

The Fire Annihilator an Old Invention.

Machines like those now got up for extinguishing fires by the generation of carbonic gas, with water in the inside of them, were invented and tried as far back as 1721. and the whole difference between the said machines and Phillips' Fire Annihilator, consists in the old one having an outer case of wood, while Phillips' is made of iron; this, *essentially* is the whole difference. In 1721, one Zachary Greyl, a German, invented a vessel named "The Water Bomb," for extinguishing fires. The invention is thus described—"A wooden vessel was provided, holding a considerable quantity ot water; in the centre of this there was a fixed case made of plates of iron and filled with gunpowder; from this vessel to the head of the larger vessel, containing the water, there was a tube which might convey the fire very readily through the water to the gun powder in the inner vessel. This tube was filled with a substance easily ignited, and quickly burned away." The manner of using it was to take it to the house on fire, ignite the substance in the tube, and throw it into the building (the same way as is done with Phillips' Fire Annihilator), when the powder in the inner case soon took fire, exploding the vessel and scattering the hot water in all directions, putting out the fire at once." The inventor exhibited his machine in Dresden and Paris, and was successful, in a number of instances, in putting out the fire. In 1823, an English chemist, in London—the place where the new Annihilator was brought out—revamped Greyl's Water Bomb, and made and sold as many of them, for a time, as the modern company in this city have done. One size was for five gallons and another for three; they are now sold by the charges. But this was not the only style of them made by the English chemist, whose name was Godfrey; he had a kind with the powder on the bottom, which carried the water up a chimney on fire, while the tube to ignite it was at the bottom, projecting downwards, and could be ignited with perfect safety. The son of this Godfrey invented a number of balls to extinguish fires, on the principle of his father's application, and on one occasion, by two balls thrown into a house on fire, it was extinguished.

Now the whole difference between the modern one and the old one, is not much, for if an outside case of metal had been used by Greyl, he would have had the modern one exactly, excepting in the use of vitriol to ignite the chlorate of potash, as used by Phillips, and the forcing of the water up by the gas passing through a perforated plate. The grand idea of a Fire Annihilator—the apparatus—belongs to Greyl; of this there is no doubt. And is gunpowder not a generator of carbonic acid gas? Certainly it is. And if gunpowder and salamoniac were used as a substitute for Phillips' gas brick, more gas would be generated; for, assuredly, a great deal of the substance used in Phillips' must pass off in carbonic oxyde—not acid—and therefore produces no effect in extinguishing flames. How Mr. Ewbank could let the modern patent pass with such a clause as this, "applying gases resulting from combustion, by the pressure of their generation," to extinguish fires, is unaccountable to us. The patent was granted in April, 1850, and the Commissioner was not ignorant of the "Water Bomb," as it is described on page 349 of his "Hydraulics." The old Fire Annihilator is public property, and by a little modification could be made better and cheaper than any modern one, using the old wooden outside case; but it never can be a useful substitute for the Fire Engine, although it may answer very well for ships, where no air can get underneath the flame. It will not answer at all when the air has a free circulation below and above, and Phillips' Fire Annihilator will be far less effectual in such cases.

The Late Machinist of the Patent Office.

We have received a note from Mr. A. B. Stoughton, the late able Machinist of the Patent Office, stating that he was not removed by Mr. Ewbank, but voluntarily resigned; it is accompanied with a note of the Commissioner, expressing his regret at Mr. Stoughton's resignation. We were not aware of the reasons which led Mr. Stoughton's place to be supplied by Mr. Bell, who is also represented to be, like Mr. Stoughton, a good and able machinist, and we made no comments on the causes of the change; to have done so would have been imprudent in us.

Great India Rubber Case in Boston.

For years "The Great India Rubber Case" has been a *case* before the people of the Republic, and it has proved one fact to a certainty, viz., that our law courts partake quite as much of the india rubber character as the article in contest between Mr. Goodyear, the plaintiff, and Horace Day, the respondent. India rubber is tough, elastic, and has a wonderful power of stretching itself to the utmost attenuity, then suddenly contracting to its original thickness; it is just the same with our laws; for this case has been before the people from Boston to Jersey, almost from time immemorial, and is still before them,—as near a settlement as it was when first it burst upon our ears with "Great India Rubber Patent Law Case, Goodyear vs. Day." On Tuesday (14th Oct.), last week, in the U. S. Circuit Court Boston, the counsel of the plaintiff (Mr. Goodyear) moved to put off the trial to the 26th day of December next, stating, as a reason, that Hon. Daniel Webster had been retained for the plaintiff, and the 26th day of December would be convenient for Mr. Webster to be present. The counsel for the defendant then moved that the proceedings be stayed in the case until the decision of another case, involving the same subject matter, that is, the validity of the Goodyear patents between the same parties, was pending in the District of New Jersey, which had been prepared at great expense by both parties, and which was put off by the plaintiff at the last September term of the Circuit Court of that State, when the defendant was ready and sought a trial upon the merits of the controversy. The defendant's affidavit was read in support of the motion, in which he claimed that there was an attempt on the part of the plaintiff to take him unprepared and compel him to try the case in Massachusetts, after having procured the case in New Jersey to be continued when it was ready for trial. The defendant asked for time to answer the plaintiff's affidavit, which was granted. Mr. Webster was in court, but unprepared, it seems, for the trial. We hold that a plaintiff should never be allowed to postpone a case: the reason we give is, that he should not bring up the case and put defendant to great expense, when he (plaintiff) is not prepared to go on with the trial. No one knows what advantage a plaintiff has to put a defendant to great expense—wilful and malicious expense—until he examines into such cases. In speaking thus, we make no reference to the principal parties in this case—we speak of principles not individuals. Such a case as this "Great India Rubber Case," we conceive, is a disgrace to our United States Courts: they are to blame for not having the matter settled long ago; law executors, to be respected, should be prompt as well as considerate. It also appears to us that the contending parties in this case have taken up a new system of advertising, for on Thursday, last week, the case was again brought before the court, and the defendant moved a postponement of the trial until next February, which the court took into consideration. Mr. Webster was there, and made a speech full of sarcasm on the defendant for publishing certain advertisements, among which was Mr. Judson's affidavit, pronouncing Goodyear's alleged patent a fraud and swindle. The article in dispute was not a form, but an article for sale, and this was a reason why justice should be rendered as soon as possible—more particularly since advertisements alleging fraud had been and were being circulated, to the detriment of the value of plaintiff's property. Mr. Webster contended that two months was ample time for the defendants to prepare, and that, though his services in the case might not be worth a straw, yet he had other engagements that would prevent his attending to the case after January, and there was no time for his client to employ other counsel in the case.

On Saturday, the 25th, Judge Sprague, in an elaborate address, decided that this suit should await a previous suit in the course of slow progress in the U. S. District Court for New Jersey.

This is truly an india rubber case.

Varieties in Science.

The Cleveland Plaindealer states that a circular has been received from T. A. C. Foreman, of Oquawka, Ill., requesting that every printing office in our country should send him $10, for which contributions he will send to each office such instructions as will enable them to transform common printing presses, having an iron bed or platten into a quick working magnetic press, the expense of change only being about fifty or a hundred dollars. Mr. Foreman claims to be the inventor of a magnetic press. He is perhaps not aware that a paper was printed twelve years ago by a magnetic engine. The expense for working his press would be far more than to work it by steam, of this there is no doubt whatever. Those who differ in opinion from us have but to put up a magnetic press alongside of a steam one, and convince us by facts.

The London correspondent of the Inverness Courier, in the latest issue, thus notices a new process of grinding introduced with success into Great Britain:—

"By the way, talking of meal, and I may include flour, there is a new way of grinding discovered, which seems likely to supersede altogether the modes and machines hitherto used. It consists of upright conically-shaped bruisers, from which the flour or meal escapes below by the force of gravitation, without any other pressure than is necessary to pulverise it. Bakers give evidence as to the great superiority of the article so produced; and a sanguine agricultural writer estimates that by the general adoption throughout Britain, of the conical vertical bruiser, a saving will be effected of more than £2,000,000 sterling per annum."

[The [illegible] shaped stone constructed on the principle of Scheles anti-friction curve. The writer makes a terrible hash of the description.]

M. Vallee, keeper of reptiles at the Garden of Plants, observed on the 14th July last, in the space reserved to turtles, six eggs lying on the sand. He took three of them, and placed them under the hatching apparatus, in which he has effected great improvements. On the 14th of this month, he examined the eggs, and to his astonishment and delight, found a turtle about the size of a walnut. This is the first time, says M. Vallee, since the creation of the world, that a turtle has been hatched by artificial means.

A late English paper says, that a few weeks ago a stone cutter at Dumfries, obtained a large block of red sandstone from the low quarry at Lockarbrigg. While squaring the stone, a loose layer was removed, and on the face of the block thus displayed, a long indention was formed. It proved to be the mark of a human foot, which must have been impressed upon the mass, which in the course of ages afterwards, became petrified into hard and solid stone. At the heel and great toe the depth of the impress was considerable, from three quarters of an inch to an inch, and the whole print of the foot was sharp and distinct.

We however differ in opinion about the impression being made from a human foot.—There are many footmarks on rocks, but such a mark in forming, whatever was the cause of it, merely assumed the form of a man's foot.

Carbonic Acid Gas and Steam to Extinguish Fires.

Messrs. Editors.—In reading your description of the Fire Annihilator, in No. 1, Vol. 7, Scientific American, I find that steam and carbonic acid gas are used, and the patent is only for the mode of generating and applying steam. In 1835 I first applied steam to extinguish fire in the hold of a steamboat; since that time many a boat on the Mississippi has employed a pipe running from the steam boiler to the hold, for the purpose of extinguishing fires, and many fine boats have been saved by this means. I put this attachment to a boat that I was building in Pittsburgh, and was told I was infringing a patent right. I never applied for a patent, and first used it sixteen years ago, and made it a present to the public. Can an action be held against me for infringing a patent right, the invention claimed being precisely the same as mine of 1835, viz., a simple pipe for the admission of steam from the boiler to the hold?

On the 4th of August last, I passed a ship on fire, cotton loaded, at the South-West Pass of the Mississippi; she had two steamboats alongside of her, pumping water into her hold. They had tried to scuttle her, but could not get her to sink. The ship finally burned to the water's edge. Now, instead of pumping water into her, had the two steamers stuck a pipe into the ship's sides, or a wooden box or trough, that could have been made in a short time, and communicating with the safety-valve of the boilers, the hold of the ship could have been filled with steam and the fire extinguished, and the ship and cargo saved.

If I see proper to use carbonic gas, generated in the most simple way, together with steam, to extinguish fire in the hold of my boat, will I be infringing the patent of the English Fire Annihilator? J. E. Haviland.

Galveston, Texas.

[Mr. Haviland is perfectly safe in using his steam and carbonic gas, as long as he does not use the apparatus of Phillips. There is no patent in existence, that we are aware of, for using steam to extinguish fire.—[Ed.

Return of Greenough the Sculptor.

This eminent American artist, has after an absence of nine years in Italy, once more turned towards his native land, and rested his feet upon the soil sacred to his affections. Mr. G. has been engaged during his residence in Italy upon his marble group for the Capitol at Washington. The group is now ready for transportation, and only waits for a national vessel to transport it to this country. The artist has come to receive it and superintend its establishment.

Is it not possible to raise up a school of sculpture in Columbia? We think it may be done.

American Progress.

The following is from the London Observer, and is not a little flattering to our feelings:—

Our cousins across the Atlantic cut many degrees closer to the ground than we do in seeking for markets. Their industrial system, unfettered by ancient usage, and by the pomp and magnificence which our social institutions countenance, is essentially democratic in its tendencies. They produce for the masses, and for a wholesale consumption. There is hardly anything shown by them which is not easily within the reach of the most moderate fortune. No Government of favoritism raises any manufactures to a pre-eminence which secures for it the patronage of the wealthy. Everything is intrusted to the ingenuity of individuals, who look for their reward to public demand alone. With an immense command of raw produce, they do not, like many other countries, skip over the wants of many, and rush to supply the luxuries of the few. On the other hand they have turned their attention eagerly and successfully to machinery as the first stage in their industrial progress.—They seek to supply the shortcomings of their labor market, and to combine utility with cheapness. The most ordinary commodities are not beneath their notice, and even nursery chairs are included in their collection of "notions." They have beaten us in yacht building, they pick our best locks, they show us how to reap corn by machinery, and to make Brussels carpet by the power-loom.—Our coopers will hear with dismay, and our brewers with satisfaction, that by an invention of theirs, recently introduced into the Exhibition, one man can do the work of twenty in stave-making, and far more efficiently.—Such triumphs does not affect, perhaps, the mechanical superiority of the mother country, but they serve to show that while on the one side nations less free and enlightened than ours teach us how to throw a lustre and grace over the peaceful arts, our own children are now and then able to point out how we can improve and extend them.

The Great Exhibition is closed, and the Crystal Palace will soon be numbered with the things that were. An interesting letter from our correspondent will be published in our next.

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☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 21, 1851.

To J. G. Bolen, of New York, N. Y.. for improvement in Burglar Alarms.

My claims I confine to a group or train of barrels or firing chambers, in combination with the pierced fuse and vent holes, constructed, prepared, and operated essentially in the manner and for the purposes described.

To Alfred Bliss, of Newark, N. J., for improvement in the tops of Cans or Cannisters.

I claim the swaging or striking up the collar, to receive the cover on the conical frustum, in place of soldering a separate one on, as heretofore.

To C. A. Bogert, of West Dresden, N. Y., for improvement in Air-Heating Stoves.

I claim the combination of a revolving cylinder or cylinders, with a fire grate, to form a heating apparatus, as described.

To T. G. Boone, of Brooklyn, N. Y., for improvement in Ships' Winches.

I do not claim the rigging of a winch or windlass, with counter-falls, for the hoisting and lowering of burdens on the counterpoise principle, at whatever relative distance of hoisting and lowering it, may be fixed, simply as such; but I claim the combination in a ship winch, of the principle of adjustability with the principle of counterpoise, whereby I am enabled to vary the relative distances of the hoisting to that of the lowering, as required in the lading and unloading of vessels.

I claim also, therewith, the principle of using a hoisting in connection with a lowering fall, so that the burden is hoisted by one fall and lowered by the other, instead of interchanging the falls, so that each load or parcel is both raised and lowered by the same fall, as has been practised in other counterpoise machines, by which means my winch is more convenient to use than it would otherwise be, when the hoisting and lowering distances are dissimilar.

I claim, also, a fall, or chain and hook, suspended over the deck or scaffold, working as a suspension chain and medium of transfer from the hoisting and lowering fall of a ship winch, whereby I am enabled, as described, to transfer packages or burdens in sling, from the hoisting to the lowering fall, without re-slinging or otherwise resting them.

To Arnold Buffum, of Brooklyn, N. Y., for improved Ore Washer.

I claim the combining in the same separating cistern, the spiral channel, having a discharge aperture at the centre, and the revolving dasher, whose arms are immediately above the channel, for the purpose of separating metals from the impurities with which they are mechanically mixed, by acting in the manner substantially as described.

And I claim this construction irrespective of the use of quicksilver in the channel, which may, in some cases, be dispensed with.

[See engraving on our last page.]

To H. N. Gambrill, of Baltimore, Md., for improvements in Dressing Cotton Duck.

I claim the process described, of softening and stretching cotton duck, by subjecting it, whilst strained, to jets of steam, and passing it over, under, or around heated stationary friction rollers, and between and around rotary pressing callender rollers, for the purpose set forth and described.

To J. R. Hathaway & J. P. Strippel, of Norfolk, Va., for improvement in Printing Presses.

We claim arranging upon a horizontally reciprocating carriage, a blanket frame, pressing cylinder, set of inking rollers, and sheet-flyer, in such a manner that the two ends of the pressing cylinder shall roll upon the side rails, thus constituting a pair of the carrying wheels of the carriage, and producing a rotary motion of the pressing cylinder, as it passes over the type form, and whereby the requisite motion is given to the blanket; the several parts being constructed and arranged substantially in the manner and for the purposes set forth.

To J, T. King, of Baltimore, Md., for improvement in Washing Apparatus.

I claim the application of a boiler, with or without divisions, placed over the revolving boiler, resting on a frame, the bottom of which boiler forms the upper half of the flue, by which both boilers are heated by the same fire, and from which the revolving boiler may be supplied with water, as described.

To H. A. Luttgens, of New York, N. Y., for improvement in apparatus for Regulating the Speed of Engines.

I claim governing the throw of the variable cut-off eccentric, for the purpose of operating the cut-off, so as to regulate or equalize the speed and power of the engine, by means of the balance of, or difference between the constant friction produced by the revolution of a pulley, which is hung loosely upon the same shaft with the said eccentric, and driven at a speed which always bears the same proportion to but is greater than the speed of the shaft, and the variable friction of a brake shaft upon a wheel, which is also hung loosely upon the same shaft, and which receives or is acted upon by the aforesaid constant friction of the pulley, the lightness of the brake strap and the friction produced by it, being controlled by a common steam engine governor; the whole operating substantially as described, the said balance or difference of friction producing either a uniformity or difference between the speed of the shaft and of the wheel, and the said difference in speed causing motion to be given to any train of mechanism, substantially such as is described, in communication with the eccentric.

[This is a very ingenious and good improvement.]

To Robert Marcher, of Cornwall, N. Y., for improvement in machinery for Enamelling Mouldings, &c.

I claim the arrangement of the conveyer, constructed so as to form, in connection with the moulding, or the article to be enamelled, a reservoir to contain the composition; said moulding forming, as it were, a sliding bottom to the reservoir, by which means the composition is spread upon its surface, as set forth.

I claim, also, the clamp for fastening and releasing the end of the article to be enamelled, the whole being constructed and operating substantially in the manner and for the purpose described.

To C. L. Meech, of Preston, Conn., for improvement in the Mouth-pieces for Wind Instruments.

I claim a mouth piece with an artificial embouchure, or lips, attached to it, using for that purpose any elastic and water-proof material, which will produce the intended effect.

To J. M. Miller, of New York, N. Y., for improvement in Sugar Vacuum Pans.

I claim, first, the evaporating and condensing tubes, constructed and arranged in the manner and for the purpose set forth, they being attached at one point only, through which the steam enters, have freedom to expand or contract, without injury—and the evaporating tubes being combined at the centre of the series, as above specially set forth, with the boiler, the steam is conveyed from the boiler to the extremities of all the tubes in the most direct manner.

I also claim connecting the filters with the vacuum pan, in the manner and for the purpose set forth, so that the vacuum pan shall perform the double office of making the vacuum in the filter, and boiling in vacuo.

I also claim the construction and arrangement of the condenser tube; as specified, the ends of said tubes being turned back inwardly nearly the whole length of the outer portion, as shown.

To Wm. Nebinger, of Sharpsburgh, Md., for improvement in Running Gear of Railroad Cars.

I claim the employment of the bar and ball and socket joint attached to its ends with a hinge, in combination with the pinion on the truck frame for directing and turning said frames, (but not drawing the train by said ball and socket joint, as I do not dispense with the ordinary traction or coupling bar), and thus bring the axis of each truck coincident with the radii of the curve of the track, and lead the whole train over any point on the track previously passed by the locomotive, without requiring the action or aid of the flanges or any of the wheels, except those on the locomotive, thus preventing the abrasion, or wear of the rails and liability of the train being thrown off.

To Henry J. Newton, of New York, N. Y., for improvement in Pianoforte Strings.

I do not claim as my invention simply the application of silver to the strings of pianos, for the purpose stated, as that has before been done, by wrapping the strings with silver wire, but, when wrapped with wire, they are liable to rattle when struck with the hammers.

I claim coating the smaller strings of pianos with silver, or an alloy thereof, for the purpose of improving the tone and preventing the rusting of the strings, substantially as specified.

To B. W. Renny, of Brookville, Ind., for improvements in Excavating Machines.

I claim, as described, the arrangement of parts by which the elevators can be raised or lowered, to correspond with any irregularity or unevenness of ground.

And I also claim making the operation of dumping self-operating, by means of the friction roller acting on the periphery of a pulley permanently attached to the shaft, as herein fully described.

To John C. Fr. Saloman, of Cincinnati, O., for improvement in Saddles.

I claim the combination of levers and spring, as set forth.

To Benjamin Severson, of Schenectady, N. Y., for improvement in Cast-iron Car Wheels.

I do not claim the chilled rim, the solid hub, nor the single plate with corrugations; nor do I claim simply radial corrugations; but what I claim is forming the said wheels with corrugations in the direction of the radii, which corrugations are reversed in passing from the hub to the rim, so that the parts convex at the hub, in pressing towards the rim, gradually lessen their convexity, and then become concave, and increase in their concavity, till they reach the rim; and so that, on the other hand, the parts concave at the hub, in passing towards the rim, gradually lessen their concavity till they reach the rim; the arches or central lines of the corrugations, thus cutting obliquely and passing through, alternately, from one side and from the other, a plane supposed to be at right angles to the axis of the wheel, and to pass through the middle of the hub, and the said corrugations, in their radial direction, being either straight or curved, the whole constructed substantially in the manner and for the objects set forth.

To T. J. Sloan, of New York, N. Y., for improvements in machinery for Shaving, Nicking, and Re-shaving Wood Screws.

I do not limit myself to the precise construction and arrangement of the parts, as these may be variously modified, without affecting the principle or mode of operation which I have invented and claim to be new.

I claim so combining the shifting mandrel that carries the blanks, with a shaving and nicking apparatus, substantially as described, that the blank, after being shaved, to give the required form to the head, and, whilst held in the same mandrel, may be shifted to the nicking apparatus, and, after being nicked, re-shifted back to the same shaving apparatus to have the burs removed by the same cutter that performed the first shaving operation, as set forth.

I also claim the employment of two shifting mandrels, substantially as specified, in combination with the shaving and the nicking apparatus, substantially as described, so that the nicking operation can be performed on one blank whilst the first and second shaving operations are being performed on other blanks, as specified.

And I also claim giving to the mandrel, or mandrels, end play in their boxes, in combination with the permanent rest at the back of the mandrel, and with the cutter, substantially as specified, by means of which the same position of the blank, relatively to the cutter, is obtained for the second shaving operation, which it had for the first, as described.

To G. C. Taft, of Worcester, Mass., for improvement in Box Opener.

I claim the combination of the lever with the brace, constructed and operating substantially as described, for opening boxes, either with or without the heel.

To G. C. Tilton, of Marcellus, N. Y., for improvement in Machines for Dressing Stone.

I claim the manner of attaching the pick-head to a strong but flexible spring, which falls on a box spring, whereby the desirable whip or spring blow is given to the pick, substantially as described.

I also claim the combination of the lever and connecting lever, and crank screw, for graduating the action of the pick while cutting the furrow of mill stones, gradually decreasing the force of the blow, as the pick approaches the feather edge of the furrow, substantially as described.

To C. C. Van Every, of Victor, N. Y., for improvement in the Seeding Apparatus of a Seed Planter.

I claim giving the seed rollers an intermittent rotary motion, substantially in the manner and for the purpose set forth.

To J. C. Ward, of Pleasant Valley, N. Y., for improvement in machines for Peeling and Cutting Peaches.

I claim the application of a revolving rasping surface to the purpose of peeling peaches, or other like fruits, and also the method of cutting peaches, by a knife revolving in a box having an opening in the bottom, in such a manner that the stone of the peach is stricken out, and the pulp thereof cut into pieces proper for drying, in the manner described.

And I claim the aforesaid methods of peeling peaches, and of cutting the same, as well separately as when combined together in the manner described.

To L. F. Whitaker, of Raleigh, N. C., for improvement in Swinging Cradles

I claim the self-adjusting pivot or connection, produced by the ball or weight, suspended from the arc, by bent rods or hooks, said hooks having sufficient adhesion to communicate motion to the cradle, from the motive power described; thus constituting a sliding instead of a fixed pivot upon the end of the cradle, making it a matter of indifference on which side of the cradle the child may be lying, without stopping the motion of the cradle, which, with the crank alone, would stop.

[See engravings in Vol. 6, page 76.]

To G. R. Willmott, of Meriden, Conn., for improvement in Portable Water-Closets.

I claim the manner of construction, as described and for the purpose specified, viz., the vessel resting upon the partition in the interior of the case, and the circular rim projecting a short distance over the edge of the cover, when on the vessel, and resting upon the top edge of the vessel, when the cover is off it, in order to form the seat; the whole arrangement being covered by the cover of the case, substantially as set forth.

RE-ISSUE.

To W. F. Ketchum, of Buffalo, N. Y., for improvement in Reaping Machines. Originally patented July 10, 1847.

I claim, first, the crooked arm or coupling piece, in connection and combination with the rack piece, and the attaching and securing the crooked arm (supporting and sustaining the rack piece to the frame), at or about the centre, so as to produce a balance, by securing it at such a point on either side of the centre of the driving wheel, as shall secure the balance and give firmness to the rack piece.

Second, I claim the endless chain cutter, in combination with the pulleys and rack teeth, for cutting grain and grass, as set forth.

DESIGNS.

To John T. Davy, of Troy, N. Y., for Design for Cast-iron Fences.

To Wm. Savery, of New York City, for Design for Stoves.

Petition for Extension of Patents.

John Thomas, of Plainfield, N. J., for an improvement in Dry Docks, for seven years from December 21, 1851.

Petition to be heard at the Patent Office on Monday, the 24th of November, 1851, at 12 o'clock M.

To M. Sorel, Paris, France, for an improved method of Preserving Iron and Steel from Rust and Oxidation, for seven years from December 7, 1851.—[NOTE—Next week we shall publish the specification of Mr. Sorel's process.]

Petition to be heard at the Patent Office, on Saturday, Dec. 6th, 1851, at 12 o'clock, M.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing.

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TO CORRESPONDENTS.

A. L. S.—Your specification was altered in accordance with your suggestions, before being transmitted to the Patent Office.

S. C., of R. I.—We have received yours. As you stated in your last, if you "cannot conceive or imagine what an immovable or movable fulcrum has to do with the passage you quoted from Arnott," then we cannot imagine why you said, in reference to it, "I contend, and shall prove, that no power is lost upon an immovable object, any more than the power of a lever is lost upon an immovable fulcrum." "Action and re-action are equal," and we have seen no reasons adduced worth consideration to controvert this.

B. H. W., of Ky.—We would not advise you to purchase "The Calculator," Mahan's Civil Engineering, and Gillespie on Roads, are the only two books we would recommend now. The price of them is $5, we think. The lamp, we do not believe, would operate well, and it would be expensive in construction. The spring pump, or French lamp, furnishes a uniform supply of oil, still we do not like it; simplicity is embraced in capillary attraction, and it furnishes a supply sufficiently uniform for all purposes.

W. H. of N. Y.—You have mistaken the cause of our not replying to your previous communications; it is because you do not give us your true and full name.

J. D. S., of S. C.—We have marked your subscription up for the full amount which you sent, deducting $2 for Mr. Campbell. We could not procure a book on the subject you suggested for anything like the balance that would have been your due.

F. S., of N. H.—We are willing to answer any inquiries that you may put to us that can be answered without subjecting us to leave our office, but we cannot run around the city to do errands for you; did you not possess considerable assurance you would not ask us to do so.

"A Foreigner" is informed that a model is as much required to complete an application for a patent as the drawings and specification. You can make an application for a patent on the same terms as a native citizen, if you have declared your intention to become a citizen of the United States. The fees you would be required to pay are $30.

F. S. I., of Ohio.—You have been written to several times, if you have not received the answers it is not our fault. The way to make india rubber adhere to iron, is to heat the iron to such a heat as will soften and make the rubber adhere. There is no table that we know of, which gives the expense of zinc in the Grove battery; the best work on this subject is that of Geo. Mathiot, in our last volume.

T. V. T., of ——.—The subject you propose is not one that we, in the course of events, wish to meddle with in the manner you propose. Our paper is not an arena for debate, but is open for the promulgation of useful information, and he who hath any to impart receives respectful attention, if his article is clear and not too long.

D. E. S., of Ohio.—We have carefully examined the sketch of your improved gate; it is believed to be substantially similar to the gate patented by Lorenzo Smith in 1849; he claims a single or double gate, constructed so as to turn up vertically by the parallel movement of the rails, in lieu of swinging each way in the ordinary manner. Your arrangement is based upon the characteristics set forth above, but varies somewhat in its details: it is doubtful whether you could use it without interfering with Smith's patent.

J. H., of Ind.—Your arrangement for planting corn appears to be very good, and we incline to the opinion that it is patentable; there are, however, so many different kinds that it will be almost out of the question to state positively.

W. J. T., of Pa.—Yours of the 13th has been received; we do not see upon what point a claim can be based in your alleged improvement in water-wheels; it is possible that, by the aid of a sketch and description, we should change our opinion respecting its novelty. We would inquire what advantage is supposed to be gained by the arrangement, that has not already been attained. This point does not appear clear to us.

J. G., of Ill.—Your plan for a cotton gin appears to be essentially the same as Carver's Patent, which has proved valueless in practice; the sketch, however, is imperfect and conveys a vague idea of the invention. Experiments will be necessary to establish its practical value.

S. W., of Ohio—We have examined the sketch of your Rotary Engine, and do not find any point upon which a claim could, in our opinion, be substantiated. Cams for operating valves in rotary engines and pumps are well known; an engine constructed upon essentially the same plan as yours, was in operation six months since, in Gold street, this city; it did not operate well You are advised to abandon it without any further expense.

E. L. H., of Geo.—We do not see anything new in your balloon on which a patent could be secured; it is not so good in its shape as Bell's or Pennington's; no utility can ever be derived from your arrangement.

H. G., of Mo.—We should charge you $20 or $25 for attending to your business.

H. F. M., of Ind.—By addressing a note to Daniel Belden, of Berlin, Ct., you will get all the information you need in regard to a first rate machine for boring hubs to wheels.

D. R., of N. Y.—The manufacturing of shears and scissors, in this city, is extensive, and you could probably get an order filled in quick time by coming here.

J. L. S., of Ind.—There were never but 10 numbers of Duggan's work published.

M. M. M., of Vt.—Since you have not water power to pump the water out of your quarry, what do you think of a horse-power? A strong horse applied to an old-fashioned lifting pump, should raise 30 cubic feet of water 7 feet high, in a minute, with ease, for that is not quite the work of half a horse power. A good small steam engine, of 6 inch bore and 12 inch stroke, would answer well; we would choose it in preference to any other, if you have cheap fuel: an engine of such capacity (an oscilating one) can be purchased for about $400, with boiler and all complete.

Money received on account of Patent Office business for the week ending October 25.

A. S., of Pa., $20; I. Van K., of Mass., $55; J. Van H., of Ill., $55; G. H. D., of Mass., $20; M. M. I., of Ga., $50; J. H. R., of N Y., $50.

Specifications and drawings belonging to parties with the following initials have been forwarded to the patent office during the week ending Oct. 25.

I. Van K., of Mass.; P. & J. R. T., of Ct.; A. B. B., of Ct.; P. P. R. H., of O.; S. G., of N. Y.; M. M. I., of Ga.

Back Numbers and Volumes.

In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:

Of Volumes 1, 2 and 3—none.

Of Volume 4, about 20 Nos.; price 50 cts.

Of Volume 5, all, price, in sheets, $2; bound, $2,75.

Of Volume 6, all: price in sheets, $2; bound, $2,75.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying

Postage on Books.

Subscribers ordering books or pamphlets through us are particularly requested to remit sufficient to pay postage, or we cannot attend to their orders. We are obliged to pay from 10 to 50 cents every time a pamphlet or book is sent by us through the post, and the justice of our demand is made apparent.

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One square of 8 lines, 50 cents for each insertion.
" 12 lines, 75 cts., " "
" 16 lines, $1,00 " "

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American and Foreign Patent Agency

IMPORTANT TO INVENTORS.---The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

MUNN & CO., Scientific American Office,
128 Fulton street, New York.

GREGORY'S PATENT EQUALIZER, for Engines using steam expansively.—This invention largely economizes fuel, and may be attached, at a trifling cost, to any engine now working, high or low pressure, on land or water, City, County, and State Rights for sale. Terms and particulars may be had, by letter, or on personal application to T. B. ROBERTSON, Agent, 120 Water st., N. Y. N. B.—A liberal commission allowed. 7 4*

WATTS & BELCHER, Manufacturers of Steam Engines, Lathes, Planing Machines, Power Presses, and Mechanics' Tools of all descriptions. Orders respectfully solicited and punctually attended to. Washington Factory, Newark, N. J 7 20*

LIST OF PRICES of Universal Screw Chucks, manufactured and for sale by O. L. REYNOLDS, N. H.:—4 inches diameter, $12; 6 inches, $18; 9 inches, $25; 12 inches, $30: 15 inches, $35; 18 inches, $40. 7 4*

MACHINERY FOR SALE—Four dead spindle filling frames, 1-16 strand speeder, 1 warper, 1 lapper, &c. Also turbine water wheels, 6 ft. diameter, of most approved patterns, at $275 each; a breast wheel, &c.; 20 feet long, and an iron under-shot water-wheel. ELI WHITNEY.
New Haven, Oct. 22, 1851. 7 6*

PATENT CAR AXLE LATHE—I am now manufacturing, and have for sale, the above lathes; weight, 5,500 pounds, price $600. I will furnish a man with each lathe, who will turn and finish axles for 50 cents each, if desired. I have also for sale my patent engine screw lathe, for turning and chucking tapers, cutting screws and all kinds of common job work, weight 1500 lbs., price $225. The above lathe warranted to give good satisfaction. J. D. WHITE, Hartford, Ct. 7 6m*

BROOM MACHINERY.—The most improved and durable machinery for the manufacture of Brooms, for sale by JACOB GRAY, Scotia, Schenectady Co., N. Y. Address post-paid. 4 8*

IRON FOUNDERS MATERIALS—viz.: fine ground and Bolted Sea Coal; Charcoal, Lehigh, Soapstone and Black Lead Facing. Iron and brass moulding sand; Fire Clay, Fire sand and Kaolin;—also English, Scotch and Welsh Fire Bricks—plain arch, circular and tower cupola—for sale by G. O. ROBERTSON Liberty place, between 57 and 59 Liberty-st. (near the Post Office) N. Y. 7 12*

Foreign Patent Office.

MESSRS. MUNN & CO. transact business connected with Patents in all European countries, where this species of property is recognized. They take pleasure in referring parties to Smith Dunning, Jr., N. Y.; Ebenezer Barrows, N. Y.; Charles Starr, Bible House; William Van Anden, Poughkeepsie; Mortimer & Gardiner, Charleston, S. C.; William Bushnell, N. Y.; J. S. Prouty, Geneva, N. Y.; Gail Borden, Jr., Galveston, Texas, and to all others for whom they have done business.

PATENT FELLY MACHINE.—This machine, for cutting fellys for wheels, is superior to anything of the kind for that object; with it, cutters are used instead of saws, and are easily adjusted to produce any required circle, in common use, leaving them perfectly smooth, thereby making a great saving of expense in dressing them for use. This machine was patented in 1850. For machines, or county and State rights, address JOSEPH ADAMS & SON, Amherst, Mass.; J. B. Wynne, Agent for the State of S. C. P. S.—Agents wanted to travel in Southern and Western States, to sell rights for the above machine. Good references will be required. 6 4

POST'S PATENT SLIDING DOOR FRONTS—For Stores and Public Buildings; a new, cheap, and simple fixture for securing store fronts, which renders them fire and burglar proof, has been invented and patented by the subscriber, who is now prepared to sell rights. Messrs. Quarterman & Son, 114 pohn st., N. Y., are general agents. Address (post paid) Wm. POST, Architect, Flushing, L. I. 6 3m

ALCOTT'S LATHES.—I would say, in regard to the Alcott Lathe I purchased of you about a year ago, that it will perform all that it is represented to, and could I not get another I would not take $50 for it, so that you need not be afraid to recommend them. F. R. BARTLETT.
Galesburg, Ill. 2tf

TILTON's Patent Violin.—The undersigned having patented his Violin Improvement, is prepared to exhibit it to the public. Being now in New York, he may be found at No. 18 Park Place (Mr. J. Wiley's), where he will be pleased to see such gentlemen as take an interest in his invention. All communications addressed "Wm. B. Tilton & Co.," as above, or at Carrolton, Pickens Co., Ala.
3 12* WM. B. TILTON.

LEROW & BLODGETT'S PATENT ROTARY SEWING MACHINE.—The undersigned, having purchased the right to use, sell, and manufacture these machines for the States of Alabama and Mississippi, and their other business engagements preventing them from giving it their personal attention, they are disposed to sell out their right to the above-mentioned States, or counties in them, if preferred, upon favorable terms. To an energetic and industrious man we will sell upon such terms as will insure a large and handsome profit. Apply to Mr. W. SCRUGGS, of the firm of Messrs. Scruggs, Drake & Co., Charleston, S. C., or to WM. MAILLER, Decatur, Ala. 4 8*

STEAM ENGINES FOR SALE.—One 8 horse-power engine, boiler, heater, and apparatus complete—price $700; one 4 horse engine, with governor, pump, and band wheel—price $300; one 6 horse ditto (new)—price $225. Also, now finishing on hand, slide and hand lathes, upright drills, mortising machines, &c. Inquire of CARPENTER & PLASS, corner of Hester and Elizabeth streets New York. 4 4*

PROFESSOR ALEX. C. BARRY'S TRICOPHEROUS OR MEDICATED COMPOUND.—Professor Barry does not hesitate to put his Tricopherous, for the two grand requisites of efficacy and cheapness, against any preparation for cleansing, renewing, preserving, and strengthening the Hair, that has ever been advertised or offered for sale. He challenges the associated skill and science of the medical world to produce, at any price, an embrocation that will reduce external irritation, cure ordinary cutaneous diseases and severe cuts, sprains, pains, &c. Price 25 cents per bottle. To be obtained, wholesale or retail, of Mr. A. C. BARRY, 137 Broadway. 4 3m*

CLOCKS FOR CHURCHES, PUBLIC BUILDINGS, RAILROAD STATIONS, &c., and REGULATORS FOR JEWELLERS.—The undersigned having succeeded in counteracting effectually the influence of the changes of the temperature upon the pendulum, and introduced other important improvements in the construction of clocks, 2re prepared to furnish an article, superior in every respect (the highest grade warranted to vary less than two minutes in a year) to any made in the United States. Complete opportunity will be afforded to test their qualities. Glass (illuminated) dials of the most beautiful description furnished. Address SHERRY & BYRAM, Oakland Works, Sag Harbor, Long Island, N. Y.

"At the Oakland Works of Sherry & Byram there are made some of the finest clocks in the world."—[Scientific American.

"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 5tf.

PORTER'S IMPROVED FORGE TUYERE—This Tuyere has proved itself the best in existence; the advantages that it possesses, if made use of, will add to the profits of the fire from 25 to 50 cents a day more than can be made on any other tuyere. With it the blast can ue regulated effectually and kept clear of clinkers, and it gives the smith every command of his fire that he can wish; it operates perfectly, is durable, and cannot be put out of order. A vast amount of evidence can be shown of its great superiority, from this city and elsewhere. I will sell the rights for counties or States, or to any man or set of men wishing to engage in a good speculation, I will sell the entire patent. Address ROBT. L. PORTER, Philadelphia Hotel, Jersey City. 5 3*

A CARD.—The undersigned begs leave to draw the attention of architects, engineers, machinists, opticians, watchmakers, jewellers and manufactures of all kinds of instruments, to his new and extensive assortment of fine English (Stubs) and Swiss Files and Tools; also his imported and own manufactured Mathematical Drawing Instruments of Swiss and English style—which he offers at very reasonable prices. Orders for any kind of instruments will be promptly executed by F. A. SIBENMANN Importer of Watchmakers' and Jewellers' Files and Tools and manufacturer of Mathematical Instruments 154 Fulton st. 6 9*

PALMER'S ARTIFICIAL LEGS.—Manufactured at Springfield, Mass., and 376 Chestnut-st. Philadelphia, by Messrs. Palmer & Co.—All orders from New York and New England must be made to Palmrr & Co. Springfield, Mass.—"I have examined carefully the Artificial Leg, invented by Mr. B. F. Palmer; its construction is simple and its execution beautiful; and what is most important, those who have the misfortune to require a substitute for a natural limb and the good fortune to use it—all concur in bearing practical testimony to its superiority in comfort and utility. VALENTINE MOTT.
New York, Jan. 29, '51. 39 6meow*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

BEARDSLEE'S PATENT PLANING MACHINE, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway; Albany. GEO. W. BEARDSLEE. 5tf

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil stove Polish. The Drier improves in quality by age—is adapted to all kinds of paints and also to Printers' inks and colors. The above articles are compounded upon known chemical laws and are submitted to the public without further comment.—Manufactured and sold wholesale and retail at 114 John st. N. Y. and Flushing L. I. N. Y.; by
QUARTERMAN & SON
48tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 1tf

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
1tf 28 Platt-st. N. Y

LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post paid) MUNN & CO.
At this Office.

KELLY & CO., New Brunswick, N. J., Foundry and Machine shop, manufacturers of stationary Engines, India Rubber Machinery, Mill Gearing, and stove castings &c. Articles made in the machinery line to order with dispatch and in the most workmanlike manner. Parties wanting machinery or castings made will be waited on within any reasonable distance. Orders solicited. 47 12*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Easton Conn.; or WM. WOOD, Westport; Ct. All letters will be promptly attended to. 37tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; sliderests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 48tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be surpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL AXLES AND TYRES, (a new article,) for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Krupp, Esq., of Essen, in Rhenish Prussia, represented in the United States by THOS. PROSSER & SON, 28 Platt st., N. Y.
2tf.

TO ENGINEERS.—A new Work on the Marine Boilers of the United States, prepared from authentic Drawings and Illustrated by 70 Engravings—among which are those of the fastest and best steamers in the country—has just been published by B. H. BARTOL, Engineer, and is for sale at the st or
of D. APPLETON & CO.,
1 12* 200 Broadway.

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SCIENTIFIC MUSEUM.

Scientific Memoranda.

The English papers received by the late steamer state that a house in Westminster street, London, belonging to a carver and gilder, was set on fire and nearly destroyed by a meteor, which descended upon the roof in the shape of a ball of fire.

A Curiosity.—The Boston Traveller has received what it calls "a great curiosity of the fruit kingdom." It is an admixture of apple and pear, which grew on a pear tree, the branches of which mingled with those of an apple tree. The fruit has partially taken the color of the apple which grows upon the tree. It has the taste of the apple, but retains the shape of the pear. The apple which grows upon the tree is of a deep red.

Conveying Parcels in an Air Tight Tube.—An experimenter in Boston is now testing whether packages may not be transmitted through a tube, by means of atmospheric pressure. The Boston papers call it something new under the sun, but we heard the same idea broached more than two years ago, by a gentleman of this city, as among the possibilities of modern improvements.—[Philadelphia Ledger.

[The same thing was proposed nearly thirty years ago. We have a description of the plan in a work published in 1824.

Preservation of Fat and Oils.—An article in the Western Lancet, by Dr. C. W. Wright, of Cincinnatti, states that the hunters of Ohio, in ancient times, had a curious way of preserving their bear's fat from becoming rancid, by melting it along with the powder of fine shreds of the bark of the slippery elm—about a drachm of the former to a pound of the latter—and then straining it. The bark communicates an odor to the fat resembling that of the kernel of the hickory nut. Dr. Wright has subjected other fatty bodies, including butter and lard, to the same experiment, and in every instance, he states with success. Butter thus prepared, he says, was a year afterwards, as sweet and free from disagreeable odor as on the day it was made;—a fact, if it really be a fact, of no mean interest to house keepers and others.

[From the Southern Patriot.]

American Tea.

Since I informed you of the germination and beautiful growth of a good number of seeding tea plants on my plantation, I am happy to continue the report of increased numbers vegetating, of the sound and healthy condition of the seedings. Some of them are now from 8 to 19 inches in height, with a proportionable number of leaves. Having planted tea nuts every month during the last year, the result shows that they will germinate either in spring or autumnal planting, but a larger proportion of nuts planted in the autumn vegetate, than when planted at any other season of the year.

The excessive heat and drought of this season, have proved fatal to many nuts and some plants. The indispensable necessity of a more thorough irrigation is plainly demonstrated. The older and larger plants, transferred from the garden in the village, will now withstand the frosts of winter and the heat of summer. They have grown luxuriantly during the summer, and are now generally covered with blossom buds. The first full blown blossom appeared yesterday, others are just ready to open out, and in the course of a week the shrubs will have thrown out many, and they will begin to drop off. To these plants alone can we look for the first growth of American seed for future planting. I look at them, therefore, with more than ordinary interest, as the harbinger of great and expanding results from the planters of Carolina. I have just received a fresh supply, the whole of my annual importation of tea nuts from China, in the finest condition, of this year's gathering, and carefully selected by Chinese gardeners, employed and sent into the interior of China, at my expense, for that object only. A small quantity of these nuts will be spared for the use of those desirous of planting. Junius Smith.

Greenville, S. C., Sept. 23, 1851.

Buffum's Centripetal Gold Amalgamator.

The accompanying engravings represent an invention of Mr. Arnold Buffum, which has been secured by patent. It is an application of principles hitherto not recognized, and for which the inventor deserves golden opinions, for he no doubt has hit upon the most simple and beautiful method of winning gold from the sand.

Fig. 1.

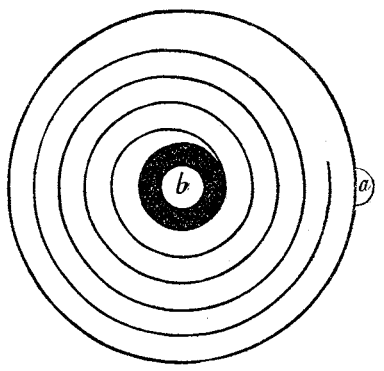
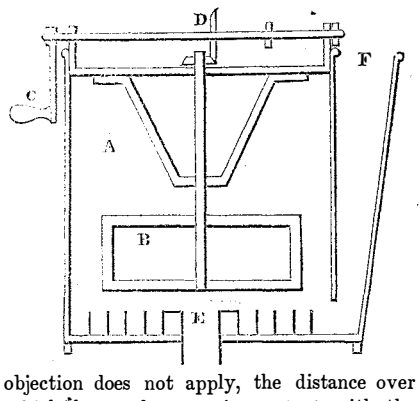


Figure 1 is a plan view of the bottom of the machine, and figure 2 is a sectional elevation. The vessel resembles one of the vertical paddle churns. It has a raised rim on its bottom in the form of a coil leading nearly from the entrance tunnel, *a*, to the central opening or escape, *b*, in fig. 1. In fig. 2, A is the vessel or cistern, and B is a revolving rectangular paddle or dasher; C is a handle to give it a rapid motion by the bevel gearing, D—the shaft is firmly secured at the sides, in proper bearings E is the vortex aperture, and F is the inlet spout. The gold sand, or auriferous deposits are put in at the spout, F, and the vessel is filled with water; motion is then given to the paddle, B, when the water rises on the sides of the vessel, but the sand passes from the circumference to the centre, into the escape channel, E.

It is uniformly conceded that, in the amalgamators now in use in all the gold mining regions in the world, there are faults which it is very desirable should be obviated: in those where rocking or shaking is relied on for floating the sand and washing it away, the quicksilver is constantly changing its position, and leaving parts over which the golden sand is passing, with no underlayer of quicksilver to absorb the gold; and in those to which this

Fig. 2.



objection does not apply, the distance over which the sand passes in contact with the quicksilver is so short, that a large per centage of the gold passes off with the sand. None of them are so arranged as to give the necessary action to the water to carry off all the impurities, so as to keep the quicksilver bare and clean for the absorption of the gold; and in all of them the operations are such that, with heavy iron sand, the quicksilver gets broken into globules, so that much of it is lost.

It is a mistaken idea that gold invariably unites with quicksilver immediately on coming in contact; on the contrary, it often passes in a current of water a distance of several feet on the surface of quicksilver, before a sufficiency of the quicksilver adheres to the gold to bring it into amalgam. An amalgamator for the fine scale gold in crushed quartz or in black iron sand, to be complete in its operation, must present a surface of quicksilver on which the compound passes in continuous contact, for a distance of not less than six or eight feet, and for rapid operation the distance must be proportionally greater; and the power of the current must be such that every thing which does not settle into the quicksilver will be washed away.

To construct a mechanical arrangement for this purpose, in such a manner as will most perfectly accomplish its design, the inventor must understand the philosophy and action of centrifugal and centripetal forces when applied to fluids: for, by a proper combination of these forces, the necessary action is brought to bear over such an extended distance on the surface of quicksilver, as to secure, at one operation, the amalgamatian of all the gold, wash away all other substances with rapidity and ease, and lose none of the quicksilver.

An application of momentum to fluids moving in a circular direction, gives centrifugal force; and on this basis, scientific writers have asserted that a whirlpool of water must carry every thing that is dependent on its momentum from the centre; this is an error resulting from an oversight of the fact that the centrifugal force in a whirlpool, confined within certain limits, as in a cistern, is greater on the upper surface than it is at the base. In a whirlpool produced by a horizontally revolving paddle in a stationary cistern, the centrifugal force throws the water from the centre and piles it against the sides of the cistern, forming an inverted hollow cone. The centrifugal force increases the elevation at the periphery, until the weight of the pile overpowers the centrifugal force at the base; the water continuing to go out from the centre on the upper surface, on reaching the periphery, sinks downward to the bottom, forcing that which was there before it to the centre, to be returned on the upper oblique surface to the periphery, making between the centre and the periphery a continual spiral movement, in the direction of the thread of a screw bend horizontally to a circle. The momentum imparted by the circular movement of a whirlpool to a solid substance on the bottom of a cistern, gives to the substance a centrifugal tendency, but the centripetal pressure of the water, from the elevated periphery of the whirlpool, is more powerful than the centrifugal force imparted by its circular motion, and consequently the solid substance is carried with the water spirally to the centre.

A practical familiarity with these facts, in direct opposition to the theory of scientific writers, has resulted in the construction of a very simple mechanical arrangement, consisting of a long quicksilver holding channel, coiled spirally on the bottom of a cistern, commencing at the periphery and ending at the centre, with a horizontally revolving paddle, suspended above the channel in the cistern. The feed of auriferous compound, commingled with water, is received into the cistern at the base of the periphery; the revolving paddle keeps the water in a rapid whirlpool motion, which carries the auriferous compound in the channel on the surface of the quicksilver, until the gold is all united in amalgam, and the said is discharged through an aperture at the centre of the cistern bottom. When the whirlpool is in operation, the centrifugal force gives a permanent support to the inverted hollow cone form of the whirlpool, in which the revolving paddle obstructs the escape of the water, by throwing it from the aperture at the centre, forward, outward, and upward to the periphery, when it reaches the periphery it sinks downward to the base, where, by the force of pressure it produces a centripetal movement, in harmony with the centripetal direction of the spiral channel.

If the mechanical arrangement were reversed, so as to receive the compound at the centre and discharge it at the periphery, the centrifugal force would throw the fine scales of gold outward and upward on the oblique surface of the whirlpool to the periphery, where it would pass off without any contact with the quicksilver but its reception at the periphery brings it into the whirlpool, where the movement of the water is downward, circular, and centripetal, so that a continued contact of the gold on the surface of the quicksilver is sure, from its entrance until it sinks in amalgam.

Machines constructed upon the principle set forth, according to their various sizes, are adapted for quartz mining, and for separating the gold from the black iron sand; the invention is a harmonious combination of mechanical devices, using the force applied to generate motion in two directions, generally called forces—centripetal and centrifugal—which, in this instance, perform a beautiful operation in a direction inverse to common opinion. This machine may be seen in practical operation at No. 25 Courtland street, this city, where more information may be obtained of the patentee, Mr. Buffum, respecting it.

Poisonings.

From a printed return of trials for poisoning or attempting to poison in England, Scotland, and Ireland during the last eleven years, we learn that the total number is 264; the whole number of parties whose lives have been taken or attempted to be taken by poison, is 243; the number of convictions is 74. The total Scotch cases is 15, of convictions 7; the total of Irish cases is 56, of convictions 13.

LITERARY NOTICES.

Class Book of Chemistry: By Edward L. Youmans, author of "A New Chart of Chemistry."—This work by Mr. Youmans is exceedingly opportune—such a book in the present state of chemical science, was demanded, but to present the science of chemistry, as it is now, in such a clear and comprehensive manner, in a work of the size before us, is more than we expected. The author has happily succeeded in clothing his ideas in plain language—true eloquence—so as to render the subject both interesting and easily comprehended. The number of men who can write on science, and write clearly, is but small, but our author is among that number. The work commences with "Inorganic Chemistry," and the Nature of the Science; it treats of all its principles, such as "chemical action," "chemical affinity," the "atomic theory," "crystallization," &c. It goes over the whole field, chapter by chapter, taking up and explaining the action and combinations of different substances, and to bring all to remembrance again, it has leading questions of the things explained, at the end of each chapter. It is divided into two parts, the latter treating of "Organic Chemistry,"—a science almost new in every respect, and still growing with astonishing rapidity. This part of the work is full of interest to everybody; it treats of Insalivation, Digestion, the Blood, and, in fact, the whole physical man, of which no person should be ignorant, but respecting which there is wide-spread ignorance. This book is adapted for schools and academies, and for popular reading. Its price is only 75 cents. Mr. Youmaas resides in this city.

The Ladies of the Covenant.—Memoirs of distinguished Scottish Female Characters, embracing the period of the Covenant and the Persecution, by Rev. James Anderson: J. S. Redfield, Clinton Hall, Publisher. This work is calculated to afford much pleasure to all who take interest in the initiatory steps which lead to the general spread of Protestantism in Scotland, in the 16th century. Such zeal and nobleness of spirit as was manifested by the Marchioness of Hamilton, and her cotemporaries, is deserving of all praise and emulation; indeed, the reward sure to follow earnest endeavors, when devoted to a good cause, remains a living memorial of them to this day.

Woman and her Needs: by Elizabeth Oakes Smith.—This is an interesting volume, just issued from the press of Messrs. Fowlers & Wells, 129 Nassau st. Price 25 cts.: mailable.

NEW PROSPECTUS
TO MECHANICS, INVENTORS, AND MANUFACTURERS.

SEVENTH VOLUME OF THE
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AMERICAN & FOREIGN PATENT AGENTS,

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